

# AMATEUR

# RADIO

MARCH 1990

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THE WIA RADIO AMATEUR'S JOURNAL

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Amateur Radio is published by the Wireless Institute of Australia, as its Official Journal on the last Friday of the previous month.

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### Deadlines

	Editorial	Hamads
April	5/3/90	7/3/90
May	9/4/90	11/4/90
June	7/5/90	9/5/90

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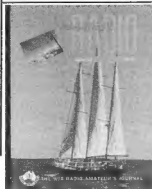
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## Cover

The Allan and VI Thistlethwayte under full sail on the port tack. Inset shows six metre Yagi on the wheelhouse roof. For story see article by Don Richards VK2BXM, "Mt Minto - Antarctic Bicentennial Expedition" on page 20.

## Discrimination Within Our Ranks

The hobby of amateur radio is a pursuit shared by people from all walks of life and socioeconomic status.

We have a long tradition of not discriminating against our fellow radio amateurs on the basis of the country in which they live, their political ideology, color, race, or religion.

Our call signs are passports into most countries via the airwaves which can't be stopped crossing national boundaries.

Throughout the world radio amateurs are men, women and teenagers, the able and disabled, from all occupations.

Governments in Australia have imposed laws banning the practice of discrimination against anyone on a number of grounds.

These include discrimination on the basis of a person's race, sex, marital status, religious beliefs, and more recently AIDS sufferers can take action for claimed discrimination.

To discriminate against someone on the basis of their race means you support the theory that human abilities are

## NEWS EDITOR'S COMMENT

JIM LINTON VK3PC

produced by race. You are a racist!

Racism is an unfortunate part of our society. It can on occasion be heard perpetrated by anonymous voices on the CB bands to "stir up" an operator who has an accent—but it has no place in amateur radio.

Sexism is another form of discrimination which does not belong to amateur radio—the hobby for everyone.

However, it appears Ageism, or discrimination on the basis of a person's age and/or the length of time they've held a call sign, is being practised within our ranks.

As the WIA Federal President, Peter Gamble VK3YRP, rightly pointed out in his Editorial which appeared in December, the WIA and member's clubs are in need of volunteers.

There's a desperate shortage of suitable and willing people to perform a range of vital voluntary tasks.

However there's evidence that some volunteers, including

those elected to office or committees are suffering discrimination on the basis of their age or amateur qualifications.

An elected club official recently claimed that within his club existed a clique of old-timers acting like a "secret society".

He and his fellow senior club official were both enthusiastic radio amateurs doing their bit to further the aims of the club and amateur radio.

However in the eyes of some this pair had a serious failing—they have only been licensed in the past ten years.

They volunteered and were duly elected and should be given the fullest support and chance to contribute to our hobby.

This form of discrimination could be called "reverse ageism", or perhaps more correctly described as "elitism".

It is the practice of regarding those who have been in the hobby a long time, or having a certain class call sign, as being

superior in some way to other radio amateurs.

Discrimination is not wanted in our hobby. Let all radio amateurs be treated equally as human beings, their voluntary contributions welcomed and their merits accepted. **ar**

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first.

## Wireless Institute of Australia

The world's first and oldest National Radio Society - Founded 1910  
Representing Australian Radio Amateurs - Member of the International Amateur Radio Union  
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<b>Intruder Watch:</b>	Gordon Loveday	VK4KAL	<b>WICEN:</b>	Bill Wardrop	VK5AWM

# 1989 Ron Wilkinson Award

Ron Wilkinson, VK3AKC, was a well known amateur on the VHF and UHF bands, and had been a notable pioneer in moonbounce experiments. In 1977, after Ron's untimely death, his widow, Mrs. Mary Wilkinson, gave the WIA a sum of money to be used to provide an annual award in memory of her husband.

This award, to be announced in the month of March, the month of Ron's birthday, is awarded for special achievement in any aspect of amateur radio.

Submissions relating to four amateurs were made to Executive by Divisional Councils for consideration for the 1989 Ron Wilkinson Achievement Award. After much deliberation, the

## WIA NEWS

**BILL ROPER VK3ARZ GENERAL MANAGER & SECRETARY**

Executive has unanimously agreed with the VK5 Divisional Council that the winner of the 1989 Award is Graham Ratcliff, VK5AGR, for his outstanding contribution to amateur satellite communications in Australia and worldwide.

Besides the honour of being chosen as the recipient of this prestigious award, Graham receives an award certificate, and the sum of \$200.00, which includes a free WIA membership subscription for one year.

## WIA 80 Competition Winner

There is no doubt that the

WIA 80 Competition, which ran in Amateur Radio magazine from November 1989 through to the January 1990 issues, was a great success. Such a success that the Executive Office was inundated with thousands of entries. The prize of an ICOM IC-900A multi-band system, valued at \$2,000, and donated for the competition by ICOM Australia Pty Ltd, was obviously a very attractive "bait".

Most of the entries were written about a common theme that clearly shows in the examples quoted below. This common theme was interesting and reassuring for the WIA, but made the task of selecting a winner that much more difficult.

However, after much deliberation, one of the entries submitted by Mr D F Dawson, VK5KD, of Goolwa, South Australia was selected as the winner. Now VK5KD has the task of selecting whether he wants either the optional six metre or ten metre module with his ICOM IC-900A prize.

## VK5KD's Winning Entry was

I am a member of the WIA because... the Wireless Institute Recognises Effective Liaison Ensures Some Stability In Negotiating Standards That Improve The United Technical Efforts Of Far-seeing Amateurs. Unity Stands Triumphant. Radio Amateur Longevity Implies Association.

As you can see, the high-

## WIA DIVISIONS

The WIA consists of seven autonomous State Divisions. Each member of the WIA is a member of a Division, usually their residential State or Territory, and each Division looks after amateur radio affairs within their State.

Division	Address	Officers	Weekly News Broadcasts	1990 Fees
VK1	ACT Division GPO Box 600 Canberra ACT 2601	President Ted Pearce Secretary Jan Burrell Treasurer Ken Ray	VK1AOP 3.570 MHz VK1BR 2m ch 6950 VK1KEN 70cm ch 8525 2000 hrs Sun	(F) \$65.00 (G) \$52.00 (X) \$39.00
VK2	NSW Division 109 Wigram St Parramatta NSW (PO Box 1066 Parramatta) 2124 Phone (02) 669 2417 Fax (02) 633 1525	President Roger Henley Secretary Peter Bainbridge Treasurer David Hosli (Office hours Mon-Fri 11.00 - 14.00 Wed 19.00 - 21.00)	VK2ZIG 1.845 MHz AM, 3.595 SSB (1915 only), 7.146 AM (1045 only) VK2CZV 10.125 SSB (1045 only), 28.320 SSB, 52.120 SSB 52.525 FM 144.12 (SSB), 147.000 FM(R) 438.525 FM(R) VK2KUF 584.750 (ATV Sound) 1291.75FM (R) Relays also conducted via many repeaters throughout NSW.	(F) \$59.00 (G) \$47.00 (X) \$33.00
VK3	Victorian Division 38 Taylor St Ashburton Vic 3147 Phone (03) 885 9261	President Jim Linton Secretary Barry Wilson Treasurer Rob Healy	VK3PC 1.840 MHz AM, 3.615 SSB, 7.085 SSB, 147.250 FM(R) Mt Macedon, VK3XV 147.225 FM(R) Mt Baw Baw VK3XLZ 146.800 FM(R) Mildura, 438.075 FM(R) Mt St Leonard 1090 hrs on Sunday	(F) \$65.00 (G) \$52.00 (X) \$39.00
VK4	Queensland Division GPO Box 638 Brisbane Qld 4001 Phone (07) 284 9075	President David Jones Secretary John Aarseth Treasurer Eric Fittock	VK4NLV 1.825, 3.605, 7.118, 14.342, 18.132, 21.175, 28.400, MHz VK4QA 52.525 regional 2m repeaters and 1296.100 0900 hrs Sunday VK4NEF Repeated on 3.605 & 147.150 MHz, 1930 Monday	(F) \$65.00 (G) \$52.00 (X) \$39.00
VK5	South Australian Division 34 West Thebarton Rd Thebarton SA 5031 (GPO Box 1234 Adelaide SA 5001) Phone (08) 352 3428	President Don McDonald Secretary Hans van der Zalm Treasurer Bill Wardrop	VK5ADD 1820 kHz 3.550 MHz, 7.095, 14.175, 28.470, 53.100, 145.000, VK5RHZ 147.000 FM(R) Adelaide, 146.700 FM(R) Mt North, 146.900 FM(R) VK5AWM South East, ATY Ch 34 579.00 Adelaide, ATV 444.250 Mt North (NT) 3.555, 146.500, 0900 hrs Sunday	(F) \$65.00 (G) \$52.00 (X) \$39.00
VK6	West Australian Division PO Box 10 West Perth WA 6005 Phone (09) 474 2626	President Alyn Maschette Secretary Bruce Hedland Treasurer - Thomas	VK6KWN 146.700 FM(R) Perth, at 0930 hrs Sunday, relayed on 3.560, 7.075, 14.115, 14.175, 21.185, 28.345, 50.150, 438.525 MHz Country re- lays 3582, 147.350(F) Busselton 146.900(F) Mt William VK6DO (Bunbury) 147.225(F) 147.250 (F) Mt Saddleback 146.725(F) Al- bany 146.825(F) Mt Barker Broadcast repeated on 3.560 at 1930 hrs.	(F) \$66.00 (G) \$45.00 (X) \$30.00
VK7	Tasmanian Division PO Box 1010 Launceston TAS 7250	President Mike Wilson Secretary Bob Richards Treasurer Peter King	VK7ZWW 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 VK7NRI (VK7RAA), 146.750 (VK7RHW), 3.570, 7.090, 14.130, 52.100, VK7ZPK 144.100 (Hobart) Repeated Tues 3.590 at 1930 hrs	(F) \$63.00 (G) \$52.00 (X) \$39.00
VK8	(Northern Territory) is part of the VK5 Division and relays broadcasts from VK5 as shown (received on 14 or 28 MHz).		Membership Grades Full (F) Pension (G) Needy (G) Student (S) Non receipt of AR (X)	Three year membership available to (F) (G) (X) grades at fee x 3 times

Note: All times are local. All frequencies MHz.

lighted letters spell out "Wireless Institute of Australia".

The seven other finalists entries are as follows. The three runners-up, who receive prizes of free 1990 membership of the WIA are:-

## VK1DE

I am a member of the WIA because... The Institute, its Executive and Divisional personnel have, over the years, fought for or negotiated the privileges that I now enjoy. Therefore the Institute deserves my support.

## VK2BHS

I am a member of the WIA because... it is solely dedicated to the benefit of the Amateur Service and has been proved singularly effective in this task for nearly 80 years. It makes good sense to belong.

## VK6LT

I am a member of the WIA because the WIA is the "linear amplifier" I need to ensure my voice is heard when my hobby is under threat.

The remaining finalists are:-

## VK3BAY

I am a member of the WIA because... the mechanisms and experience to deal with government to ensure that Amateur Radio survives as a hobby is not available through any other organisation.

## VK4BIB

I am a member of the WIA because... I believe that all "amateurs" should share the load of the cost of protecting our bands, not only for our use and enjoyment, but for future generations also.

## VK5ZQ

I am a member of the WIA because... it is an organisation of amateurs safeguarding the interests of all Australian amateurs at all levels of government, nationally and internationally.

## VK6JX

I am a member of the WIA because... it is the only institution in Australia fighting for my rights and privileges as a radio amateur against commercial pressure and non-member indifference.

A very big thank you to all those WIA members who submitted entries in this competition. May the WIA 80 year bring you everything that you want.

Also, abig thank you to ICOM Australia Pty Ltd for so positively supporting WIA 80. And congratulations to the winner of the competition, VK5KD.

## WIA Member Numbers

Although the WIA introduced cyclic billing for membership subscriptions some years ago, most members (73%) are still on the January to December membership cycle. When you consider that the new annual fees come into force as from 1st January each year, the membership renewals for that cycle are generally considered a good indicator of the success of the WIA.

In recent years, about 5 to 6% of members have been renewed at the January renewal time. However, most of those losses were recouped during the year with the recruitment of new members. This year some "prophets of doom" forecast that, because of the necessary, but substantial, increase in membership fees, and the protracted public agonising over this fee increase, more than 20% of members would not renew.

Although it is still too early for final figures, with more renewals arriving in the post each day, all indications are that the net decrease in membership for 1990 will be less than 10%. This is a clear vote of support for the WIA by its members.

The challenge is for the WIA to live up to this vote of confidence, and a challenge for its members to recruit more members.

Remember, WARC 92 is just around the corner, and the radio

amateurs of Australia need the biggest voice possible in order to protect our frequencies.

## Non-AR Members

It is customary for national amateur radio societies to insist that receipt of their magazine be a compulsory part of membership. Some years ago the WIA introduced a "family" grade membership whereby, if a member lived at the same address as another member, they could have a "non-receipt of Amateur Radio magazine" membership at a reduced fee.

As a result of many requests, the WIA introduced a non-AR grade of membership as from January 1990, regardless whether the member is a "family" member or not. This innovative step is a first for any national amateur radio society.

Again, some "prophets of doom", with little faith in Amateur Radio magazine, forecast dramatic increases in the number of members who would want this new grade of membership.

It will be some time yet before final figures are available. However, indications are that the 2.4% of membership who had the "family" grade of membership in 1989, will only increase by about 1%.

Also, it seems that the increase in the "concessional" grades of membership will only be about 1%. This is, no doubt, a reflection of the steadily increasing average age of radio amateurs.

## Member Details

During the hectic processing of membership renewals in the Executive Office during the month of January, it was found that more than 20 members sent in a renewal cheque when their current membership did not expire for several months. They had heard all the discussions on air about payment of renewal subscriptions, assumed that their renewal notice had gone astray in the post, looked up page 3 of Amateur Radio magazine for details of the fee, and sent in their remittance.

If you are unsure about your membership details, the best place to look is on the flysheet that comes with your copy of Amateur Radio magazine each month. Not only does this flysheet have a convenient change of name/address/callsign advice slip, and a membership application form for you to sign up a new member, on the reverse side, but it also has on it your address label that contains useful information about your membership of the WIA in the top row of figures and letters.

The first two figures show the first month of your current membership of the WIA, for example "03" shows that your membership commences as from 1st March. The next numeral shows the Division of the WIA of which you are a member, for example "4" would mean the VK4, or Queensland Division. The letter immediately after this indicates your grade of membership, for example "G" means the concessional (pensioner) grade.

If you are a member of the VK3 Division, there may be two characters before your callsign or listener number, which indicate your Divisional Zone. For example, "NE" shows you are a member of the North East Zone.

After your callsign or listener number, is your database computer membership number. Please note that this is not the same number as appears on your WIA membership certificate.

Finally, at the end of the top row of your address label, is the date of the issue of Amateur Radio magazine that was posted to you with that address label. For example "0190" would indicate that the address label accompanied the January 1990 issue of the magazine.

## FTAC

The Federal Technical Advisory Committee is a specialist WIA committee. It consists of a Chairman and various expert members, and advises the Executive on all technical matters appertaining to amateur radio, as well as managing the

RF spectrum as directed by Executive.

Liaison takes place between FTAC and various state Technical Advisory Committees, and matters are considered in conjunction with appropriate specialist user groups.

FTAC has an onerous task, particularly with the increasing complexity of modes and frequency usage by the amateur service.

Rob Milliken, VK1KRM, was elected as Chairman of FTAC at the 1989 Federal Convention, and has had a very busy time with many projects, including cross-linking of repeaters.

Unfortunately, Rob's work commitments have escalated to the stage that, although he would like to continue in the position, he realised that he does not have the time available to do the job justice.

Therefore, at the last Executive meeting on 23rd January 1990, John Martin, VK3ZJC, was elected as Acting Chairman of FTAC, with a view to him being appointed as Chairman at the 1990 Federal Convention.

John is not a newcomer to FTAC, having served as a committee member some years ago. He will need the support of the state Technical Advisory Committees, the specialist user groups, and he will need your support in this difficult task.

## Amateur Radio Rescue

Ever since its beginnings, amateur radio has played a vital part in rescue and safety. Why don't we more actively publicise this important community aspect of our hobby? Why is the Australian news media not interested?

The following rescue due to amateur radio appeared on the Adelaide Channel 10 TV news, but probably only because their helicopter was involved. Certainly, the print media in Adelaide was not interested!

On the morning of 4th January 1990, Charlie Branch, VK5YC, who is a pensioner due to his being legally blind, was monitoring the Adelaide re-

peater 7000, as is his usual practice, when he received a call from VK5KJJ. VK5KJJ, who was mobile/portable on the shore of Lake Alexandrina, the outlet of the River Murray, had seen a boat capsized on the lake.

This lake can be treacherous, and has claimed lives in boating accidents over the years. Charlie rang the Adelaide police, who instigated rescue action involving the Channel 10 helicopter.

Another boat picked up the seven people from the capsized boat seen by VK5KJJ but, with fourteen people on board, was soon in difficulty itself. All fourteen were eventually brought to shore. A salutary lesson was that, despite the sailors having been advised not to go out on the lake that day due to adverse conditions, only one of the fourteen was wearing a life-jacket.

Rowland Bruce, VK5OU, supplied the above information, and commented that, although the newspapers acknowledged his report, they did not consider it newsworthy enough to use as no one died!

## EMI Standards

During October 1989, the Community Policy Development and Planning Branch of DoTC issued a draft paper on "The Need for Electromagnetic Interference Standards" for comment.

The WIA received a copy that was examined by our past Standards Australia representative, Alan Foxcroft, VK3AE, the Federal EMC Co-ordinator, Hans Ruckert, VK2AOU, and Ron Henderson, VK1RH, from FTAC. The paper was substantial, containing 29 pages including tables and annexes.

The WIA was a little unclear as to whom the draft paper was directed, for it was general in nature and context. We presumed that it was aimed at middle and senior management, possibly for ministerial advice, and we said so in our response.

Alan Foxcroft noted that the paper included some contributions he had made at an earlier time. These related to the po-

tential for dumping of products with poor EMC/EMI performance, that would not be allowed to be imported into nations conscious of interference issues, onto the Australian market.

In this regard, Hans Ruckert commented that the German authorities took a very strong line on EMC and devoted effort to testing of consumer products such as TVs, VCRs, computers and the like.

The following comments were included in the WIA response to this DoTC paper.

"The WIA gives full support to the need for EMI legislation and standards as proposed in the paper's conclusions. As observed in the paper, the Australian radio amateur has to operate at very close proximity to many electronic devices that may suffer malfunction when subjected to high ambient RF fields.

"The WIA has been active in Standards Australia deliberations on appropriate standards. However, we note the less than enthusiastic involvement by industry which, coupled with government resource restraints, have unfortunately severely drawn out Standards Australia deliberations.

"Of great concern to the WIA is the minimal coverage in the paper afforded to power line interference. By that, we mean RFI generated by power distribution system "furniture", ie. poles, cross arms, insulator strings and clamps. Your statistics show this source contributes almost one third of interference reports, yet receives only cursory mention in the draft paper.

"The paper's conclusions correctly identify the economic considerations when introducing standards. However, the WIA feels the inter-related social issues are equally important, as the Department's field staff have observed earlier in the paper.

"Finally, the WIA supports the introduction of Australian standards based upon, or closely coupled to, international standards, ie CISPR.

"We advise our availability for involvement in the subse-

quent study proposed by the Department."

## Intruder Watch Survey

Are you concerned about the future of the amateur service frequencies? Well, you should be! And here is an opportunity for you to play an important role in the fight to retain our bands.

As most amateurs will know, the next World Administrative Radio Conference (WARC) will be held in Spain in 1992. Among the many things to be considered at this WARC are the frequency allocations in the 3 to 30 MHz bands.

In order to assist the Administrative Council of the IARU to formulate policies with regard to the amateur radio stance to be taken concerning our frequencies at WARC 1992, the IARU has requested that certain bands of frequencies be studied for band occupancy and related matters.

The IARU Monitoring System has been charged with organising this survey and collating the results. The one year survey commences on 4th March 1990 at 0100 UTC, and continues until 3rd March 1991. The survey period is divided into four time periods coinciding with the HF Broadcasting schedules.

To provide useful results with the limited personnel available, the minimum number of operators required for each monitoring team will be eight. These teams of eight operators are scheduled to monitor the frequencies of interest for a two hour period each eight days. The days of the week and the scheduled time for each operator both increment throughout the year.

In other words, operator "A" will commence on 4th March 1990 at 0100 UTC, and monitor until 0300. Eight days later, 12th March, he will commence monitoring at 0400 and conclude at 0600, and so on throughout the length of the survey.

Operator "B" will commence on the same day, but at 0400

UTC. He will then go to the 12th March where he will commence at 0600 UTC. The team of eight operators will continue in this fashion for the duration of the survey.

Every monitor will be listening on the same days, which are progressively eight days apart, and each is starting on each successive monitoring day two hours later than previously. In this manner, the whole 24 hour period will be covered each eight days.

The IARU would like to see as many amateurs and SWL's as possible participating in this survey. An invitation is extended to everyone to assist, WIA member or not. This is an important activity in the preparation for the fight to protect our frequencies at WARC 92, and is of vital importance to all radio amateurs.

The operators involved will need receivers capable of tuning outside the amateur bands, but will not need to have specialised knowledge of signal types, as this is a band occupancy study only.

The frequencies of interest will be:

5.005 - 5.060 MHz  
10.150 - 10.350 MHz  
14.350 - 14.400 MHz  
18.168 - 18.318 MHz  
24.740 - 24.890 MHz

It will be very interesting to find out what goes on these particular non-amateur frequencies.

To participate in this important survey, which will only involve two hours per week, please immediately get in contact with either:

Gordon Loveday, VK4KAL,  
"Aviemore",  
Rubyvale, 4702,  
QUEENSLAND

or

Bill Martin, VK2COP,  
33 Somerville Road,  
Hornsby Heights, 2077  
NSW

Advice of this survey was received late, so contact either of these Monitoring System co-ordinators without delay.

## Amateur Numbers in VK

You may recall the concern expressed in WIANEWS in December 1989 issue of Amateur Radio magazine about the lack of growth in the number of radio amateurs in Australia during the 12 month period to 30th September 1989.

However, the official DoTC statistics for Radiocommunications' licences as at 31st December 1989 are now to hand, and it seems that things are looking up a little. During 1989 there was an increase from 17898 as at 1st January 1989 to 18372 as at 31st December 1989, an increase of 474 (excluding beacon and repeater stations) or 2.65%.

As at that date, there were 3,336 Limited, 1,444 Combined, 2,878 Novice, and 10,714 Unrestricted amateur stations licensed in Australia. In addition, there were 34 beacon and 262 repeater licences in existence.

Just by way of comparison, the CB service had 304 repeaters licensed as at 31st December 1989.

## Small Print in February

As you will have noticed in last month's issue of Amateur Radio, it was jam packed with information. The Managing Editor, Graham Thornton, was heard to be muttering to himself, or to anyone else who would listen, phrases like "it won't fit", "it can't be done", and "you can't fit a quart into a pint pot".

Well, as you saw, Graham did it, with only very little information having to be left out. One of the reasons so much was able to be fitted into this special data reference issue was the reduction in size of the print throughout the magazine.

However, there is no cause for alarm. As you can see from this issue of your magazine, print size is back to "normal" again.

Graham has asked me to apologise to any readers who

were concerned about this "once only" reversion to small print. He assures me that he hopes he does not have to use it again.

## MagPubs Bookshops

Each month a MagPubs' advertisement appears in Amateur Radio magazine. These advertisements publicise some of the latest and most popular books available to members of the WIA at a discount from their local Divisional Bookshop.

However, each month we receive cheques and orders from members who apparently believe that these MagPubs' publications are available from the Executive Office. This is not so. We do not stock any of the current MagPubs' overseas publications in this office. As it states in the advertisements, these books are only available "from your WIA Divisional Bookshop".

Occasionally members contact the Executive Office complaining that the MagPubs' advertisement does not tell them how to contact their Divisional Bookshop. The answer to this, of course, is that a WIA Divisional directory appears on page three of Amateur Radio each month. If you do not know how to contact your Divisional Bookshop officer direct, then write or telephone to your Division as indicated in this directory.

## MagPubs Sale

Having stated that MagPubs overseas publications are not available from the Executive Office, let me now state the one exception to "prove the rule".

As a result of an order placed just before the changeover of the old "centralised" MagPubs' system last year to the current decentralised MagPubs operation, the Executive Office still has several current RSGB publications sitting in stock.

These must be cleared out so that we can close the books on the previous style of MagPubs' operation. A clearance sale advertisement ap-

pears elsewhere in this issue of Amateur Radio. As you can see, only limited numbers of these books remain in stock, and they are available to you at bargain prices. First in first served! Be quick with your order.

## Marlon Brando WA6BRU

An interesting item of news has come to hand from Ken Gott, VK3AJU. The well known Hollywood film star, Marlon Brando, is a radio amateur. He once held the callsign WA6BRU, and also worked as F00GJ, and is believed to have used several other callsigns during his travels and vacations.

Peter Manso, a best-selling writer in the USA is preparing a book on Brando and would like to hear from anybody who contacted him on air and who has a "vivid recollection" of the QSO.

Peter Manso can be contacted at PO Box 668, Truro, MA 02666, USA.

## Field Day Catapults

Last year the Victorian Government banned the sale and use of catapults (better known to the older generation as "shanghais", or to the Americans as "slingshots").

On learning this Ken Gott, VK3AJU, wrote to the Minister for Police and Emergency Services pointing out that radio amateurs engaged in field and similar portable operations would be seriously affected by this prohibition.

Ken's gear for portable operations includes a fisherman's hand-caster and monofilament line with sinker attached, and a catapult. Ken uses this gear to get a line over a suitable tree branch and then to draw an antenna wire over the limb.

Naturally, Ken emphasised the role of the John Moyle and other field day events as training for WICEN operations and the contributions of WICEN itself to emergency services.

Ken received a response from the Ministry, dated 29th



December 1989, which reads:

Dear Mr Gott,

#### PRESCRIBED WEAPONS REGULATIONS 1989

I refer to your letter requesting an exemption from the above Regulations to enable the use of slingshots in the pursuit of your hobby as an amateur radio operator.

I am pleased to be able to tell you that the following exemption was recently approved by the Governor in Council:

'Sections 4(j) and (k) [which relate to slingshots] do not apply to amateur radio operators where the articles are used in pursuit of that hobby.'

Yours sincerely,

**MONIKA HENDERSON**  
**DIRECTOR, CRIMINAL  
JUSTICE**

Please note that this is not the April issue of Amateur Radio magazine.

## **WIA 80 AR For Non Members**

One of many initiatives that the WIA is offering during 1990 to celebrate its 80th Birthday, is a limited, once only offer of a four month subscription to Amateur Radio magazine for non-members of the WIA.

This four month subscription to AR will be for the May to August 1990 issues of the magazine and will cost just \$12.00. The subscription includes the cost of postal delivery of the magazine, and must be received in the Executive Office no later than 30th April 1990 in order to qualify for this offer.

If you know of someone who

should be a member of the WIA, here is a chance to introduce them to our magazine on a trial basis.

## **WIA 80 Award**

The Awards Manager tells me that applications for the WIA 80 Award are starting to increase. At this time, overseas recipients of the Award number in the low twenties, and the recipients of the much harder Australian Award now number half a dozen.

The first CW Award, either for an overseas or Australian applicant, has been won by Ivor Stafford, VK3XB.

In order to qualify for the award, amateurs living in Australia need to contact (log) 80 members of the WIA. For the contact to be valid, it must include the WIA membership number of the WIA member involved. This number can either be the number on the member's membership certificate, or the six-digit number appearing on the address label of his Amateur Radio magazine.

Full rules of this interesting and challenging award appeared on page 4 of the September 1989 issue of Amateur Radio magazine.

## **WIA 80 Events Coordinator**

As all WIA members know, Australia's national radio society is celebrating its 80th anniversary this year.

Working behind the scenes since early 1989 on the planning of many of the WIA 80 activities has been Jim Linton, VK3PC, already well known to

WIA members for his involvement with the WIA Victorian Division and as the News Editor for Amateur Radio magazine.

Jim's appointment as WIA 80 Events Co-ordinator was effectively made at the 1989 WIA Federal Convention where he convincingly proposed that the WIA's 80th birthday should not pass unheralded.

He was heavily involved with the highly successful WIA 75 Award, and was a member of the WIA 75th Anniversary Committee, taking on the job of publicity. Jim has used this experience to ensure the WIA's 80th anniversary is one of celebration.

His view was that it should not be on the scale of WIA 75. However, there were appropriate events to recognise the world's first and oldest national radio society in its 80th year.

Hence, events such as the WIA 80 logo competition, the WIA 80 Award, the WIA 80 Competition, and the WIA 80 Amateur Radio for non-WIA members scheme.

Well done, Jim.

## **Special June Issue**

As mentioned previously, the June 1990 issue of Amateur Radio magazine will be a special "Test Equipment" issue. The Editors are seeking articles on construction of test equipment, modification of test equipment, and test procedures for this special issue.

Several authors have already submitted articles for this special issue of your magazine. However, time is running out if you want your test equipment article to be included.

Please note that articles need to be received at this office no later than the middle of March so that the articles can be prepared for publication in the June issue.

A prize will be awarded to the author of the test equipment article that is judged to be the best of those published in this special issue of Amateur Radio magazine. After much deliberation, and considering the limited finances of Amateur Radio, it has been decided that this prize will be a year's free membership of the WIA.

## **New ICOM Dealer in Melbourne**

A late trade news item just to hand is that Stewart Electronic Components has become the latest ICOM Australia Pty Ltd dealer in Melbourne.

Stewart Day, from Stewart Electronic Components, tells me that he will be stocking a full range of ICOM transceivers and accessories. Stewart shortly expects to have a fully operating amateur station in his showrooms where intending purchasers will be able to try out the ICOM range of equipment.

BT

**Help stamp out  
stolen equipment**

**Keep a record of  
all your equipment  
serial numbers in  
a safe place**

## **ANTENNAS & ACCESSORIES**

We manufacture a comprehensive range of HF, VHF and UHF antennas, baluns, power dividers etc to suit your application. Three of our log periodics provide continuous coverage from 1.3-30 MHz including WARC frequencies, and replace outdated tri-banders. Now in use in 24 overseas countries and 6 continents.

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- MATERIALS
- HIGH GAIN VHF & UHF AMATEUR, SCANNING & TV ANTENNAS
- BUTT SECTION TRIANGULAR ALUMINIUM TOWERS FOR FIXED OR TILT-OVER APPLICATIONS (REFER MARCH/APRIL 1987 AR)
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## **ATN ANTENNAS**

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# MY ANTENNA FARM

BRIAN WARMAN VK5BI  
Box 677 Whyalla 5600

As an Old Timer I am frequently asked about the most effective antenna layout to adopt for the average QTH.

When I started, in the pre-TV, pre-SSB era, I lived on a very large block in a country town. The antenna I chose was a long-wire; 8 wavelengths on 20m and slanting downhill to the USA. Power was 100 watts input on AM.

I worked a lot of DX.

Then came TV. Very primitive sets to be sure; but TV was King in those days: I did not feel competent to explain to the proud owner of a 21" Admiral that she should not be attempting to watch TV in a fringe area when I wanted to work DX! Something had to be done.

My very good friend VK5DS (an ex GM) had encountered the problem many years previously (the Gs got television in 1936) and suggested I put in resonant antennas. This advice proved to be the best I have ever received.

I was recently involved in "proving in" a site for a HF base.

I used a mobile radio with a trapped whip to assess the suitability of the location: The usual parameters dear to an amateur of course were assessed. The signal was adequate, noise not a problem. The final installation was a disaster. What went wrong?

It was my old problem. Wideband antennas! The antenna installed for this base station was the famous Australian Dipole. This antenna is installed all around Australia from Bourke to Burketown, and it works very well. But in a city it collects and radiates all RF, good and bad.

So back to my 1950's problem with the TV.

This of course was due to a wideband antenna. Namely the "Long Wire".

My solution to the TV problem was a multiple dipole. This was (even at the bottom of the sunspot cycle) 3 dipoles on a common coaxial feedline: The dipoles were cut for 20, 40, and 80 metres.

I used this arrangement for a number of years until the lure of a beam became irresistible. I then constructed a Cubical Quad. This served me for many years as the sunspot cycle peaked and the 10 and 15 metre bands became interesting again. But then, about 10 years ago, I moved to the city and decided to give my quad to an SWL friend. (That thing would be a mis-

take in the city — too visible.) I put in a commercial Yagi antenna and 10, 15, and 20 were catered for. What about the WARC bands we had recently gained? Plus 40 and 80?

In a city-sized block there are not too many choices for an amateur who wants to use most of the bands. In my case, the new house presented as a double edged sword. On one hand, I have an excellent 20m tower which supports a television antenna system. A tower of that height is a magnet for any red-blooded Ham. Having said that, with an antenna booster at the top, what chance has the tower as a support for WARC + 40 and 80? The simple answer to that question is; pretty good, but watch out for the VCR. On 40/80, plus WARC, using a straight transceiver, there is no problem with television; the VCR changes everything!

My response to the tower was to make a trapped antenna and haul it to the top with a halyard. This antenna (which I have described in Electronics Australia and Break In) is very easy to duplicate. It covers the 80/40/30/17 and 12 metre bands.

	*Coax length (cm)	Form length (cm)
40m	180	11
30m	133	9
17m	83	7
12m	71	7

\*Wound on 3.2cm poly pipe

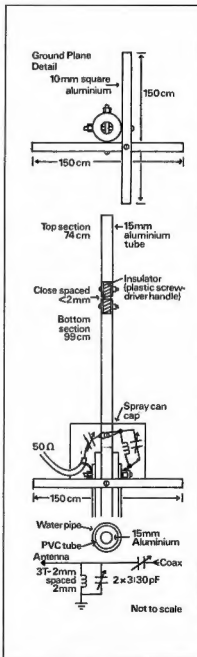
## Element Dimensions

12m	2 x 260 cm
17m	2 x 22 cm
30m	2 x 244 cm
40m	2 x 144 cm
80m	2 x 645 cm

A favourite band of mine has always been 1.8 MHz (160 metres). I have been active on this band since it again became available to Australian Amateurs in 1962.

When I lived in a mangrove swamp I used a top-loaded 50 foot (15 metre) vertical. This was supported by venetian blind cord and worked pretty well. But one of these antennas at my new QTH would have been too much. An alternative was obviously needed.

I studied the ARRL Antenna Book and was persuaded that loading the tower would solve all my problems. The 20m television tower was anchored to the ground; properly earthed, it should have



Construction details for 7/8 wave 2m antenna

# Radio Amateurs: Have you checked out EA lately?

No doubt most radio amateurs are aware that *Electronics Australia* is by far this country's largest-selling electronics magazine, as well as being its oldest (we began way back in 1922, as *Wireless Weekly*). But have you looked inside the magazine lately?

Remember Jim Rowe, VK2ZLO? Jim used to be Technical Editor, and then Editor – back in the late 1960's and 1970's. You may recall some of the amateur radio and test equipment projects he developed, which proved to be extremely popular. Well, Jim is back at the helm of the magazine, and has been busy giving it a new lease of life.

You'll now find lots of new 'departments' in the magazine, including Solid State Update (with news of new semiconductor devices), Silicon Valley Update (news from the USA) and What's New in Entertainment Electronics. Plus all of your old favourites like Forum, The Serviceman, Circuit and Design Ideas and so on. And of course plenty of 'meaty' technical articles and construction projects.

What about *amateur radio* projects? Well, as you can see there are more of these than before – but we're very interested in publishing more. So if YOU have developed an exciting amateur radio project, please contact Jim Rowe by writing to him at EA, 180 Bourke Road, Alexandria 2015. Or phone him on (02) 693 6620, to discuss the possibility of publishing it as a contributed article. As well as earning a fee, you'll also be helping to boost interest in amateur radio!

Take a look at the new, rejuvenated *Electronics Australia* – on sale at your newsagent at the beginning of every month. Or subscribe now, by phoning (02) 693 9517 or 693 9515.

## FEATURES IN OUR MARCH ISSUE:

### KOM'S IC-R9000 'SUPER RECEIVER'

The incredible new IC-R9000 tunes from 100kHz to 2000MHz, and has almost every conceivable feature including a built-in spectrum scope and scanner. Jim Rowe tried it out, and here's his report.

### LOW COST CRYSTAL FREQUENCY CALIBRATOR

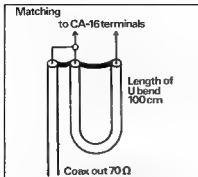
A really compact little unit, which generates any of 11 different frequencies from 10MHz down to 5kHz. Use it to check your scope timebase or receiver dial!

### SIMPLE 6M NBFM RECEIVER – 2

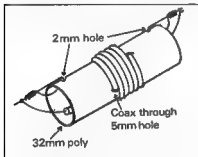
Here's the second article describing our new easy-to-build NBFM receiver, which can also form a tuneable IF for VHF and UHF converters.

# Electronics Australia

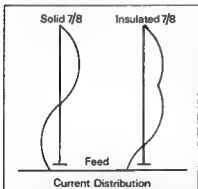
Australia's Top Selling Electronics Magazine



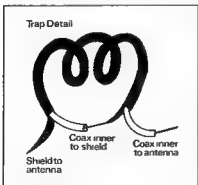
Matching arrangement for 16 element collinear antenna



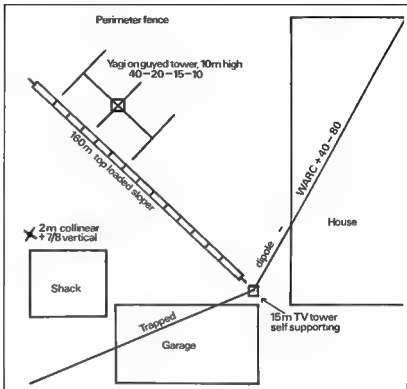
Trap construction details



Current Distributions for 7/8 antenna



Connections for the traps



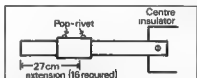
Layout for antenna farm

been the answer to an amateur's prayer. It didn't turn out that way! I tried gamma matches, as detailed in the "Book", but as the tower was a little short they did not work as well as expected: Even at 20m it was too short. The gamma capacitor had to be very large.

I still needed a 160m antenna. I tried running a random length "long wire" around the yard; it picked up a lot of QRM, not too much signal, and radiated badly. Back to top loading.

I mentioned earlier that I had used a 50 ft top loaded antenna for 160, (and as an end-fed 1/2 wave on 40), at my previous QTH. This antenna comprised one of those "pop-up" tubular TV masts surmounted by a loading coil and a circular top hat in the shape of a spoked wheel. This antenna had been successful for a couple of reasons. It was reasonably broad because of the bulk presented by the tubular mast, and it radiated well since the top loading ensured there was current right to the top.

With the aid of Pythagoras, I calculated a 20m length was available sloping from the top of the TV tower to the bottom of the back fence. This antenna was built in the form of a two wire radiator (for wider bandwidth) using 20mm poly pipe for spacers. The loading coil (also on 20mm



Modifications to Hills CA-16 antenna for 144 MHz:

poly) is 2m from the top of the antenna; and a wire from the loading coil continues to the support, then folds back in two wires to the level of the loading coil.

The antenna base is matched to 50 ohms with an autotransformer of 50 turns to ground and tapped approx 5 turns from ground for co-ax feed to the shack. This way there are no problems with RF at the operating position.

The multi-band Yagi selected to replace the Quad was a TET HB433. This excellent 3 element beam covers the 40, 20, 15 and 10m bands. I installed a 10m crank-up tower for its support.

Whyalla is about 200km North West from Adelaide. I needed a low profile antenna for 2m SSB back to that centre. It may surprise many readers, but the path to Adelaide is always open on 2m SSB. It is a very reliable band for rag-chewing: I frequently work duplex 2m and 160. The antenna for 2m SSB is a 16

# STOP THE PACKET RACKET ON HF!

COLIN RICHARDS 9M2CR

73 JALAN PANTAI 71000 PORT DICKSON MALAYSIA

Right at the outset, we should bear in mind that Amateur Packet AX.25 is a straight steal from Telecoms X.25 landline Packet — a system designed to operate on quiet and clean Telecom channels — not on radio links. Amateur Radio VHF/UHF paths offer a reasonable facsimile of a clean landline channel — hence the success and attraction of AX.25. Early kit-built TNCs were primarily aimed at users on VHF/UHF links and the modifications to run 300 bauds with 200 Hz shift were by way of an experiment by TAPR to see how Packet worked on HF. When ready-made TNCs appeared on sale — each one boasted HF facilities, as if this were automatically assured. Those who expected more microprocessor magic were soon disappointed to find that Packet Radio performed badly on the HF bands. You don't have to look far for the reasons.

Even the very shortest AX.25 packet frame is 152 bits long — leading flag (8 bits) + destination call (56 bits) + source call sign (56 bits) + control field (8 bits) + frame check sequence (16 bits) + trailing flag (8 bits) — more if bit stuffing takes place — and more again if you wish to digipeet. We haven't added a single word of communication or data yet — so that 19 bytes (152 bits) is a fixed overhead charge for each packet sent. The PACLEN command allows the user to set an upper limit to the number of data bytes in each packet. The default value of PACLEN is sometimes 128, sometimes 80 — depending on the TNC being used. 80 bytes

represents a single line of type, which seems a reasonable sort of target to aim at. This adds 640 bits to the 152 bits (minimum) overhead charge — giving a packet of at least 792 bits long. It needs just ONE of these bits to be corrupted for the whole frame to be discarded. At the HF packet speed of 300 bps this packet will take 2640 milliseconds to send. This means we need 2.64 seconds of perfect propagation to get the packet through unimpaired — no fading, no QRM, no static. What a hope! The result can be seen when you watch the struggling traffic on 14 MHz — retry after retry after retry.

In contrast, an AMTOR data block is only three characters (21 bits) long. At 100 bps it takes only 210 ms to send the block — against the 2640 ms required by our packet frame. In other words, the AMTOR block gets through in just one twelfth of the time taken by the Packet frame and the chances of interference are thus greatly reduced. Even if the Packet station tries to improve the odds by setting PACLEN to 40 (half a line of type) this shorter packet will still take 1573 milliseconds to send — 7 times as long as an AMTOR block. Remember, too, that AMTOR retries are much quicker and very much shorter than Packet.

The Packet user starts his first HF QSO and is delighted to see how quickly he gets connected. At this stage he probably doesn't know that the CONNECT packet is one of the shortest and therefore one of the easiest to send. The trouble

starts when he tries to send a message.

The first rude shock is to see that even when he gets a packet through, it will perhaps be only a short piece of a sentence. He may have to send 3 packets to complete the message before it makes sense to the station at the distant end. In the meantime, the distant station gets restless, wondering whether it is HIS turn to transmit, so he starts sending. In comes a piece of his opening sentence and Station 1 is surprised to see this jumbled in with the message HE is trying to send.

They pause and consult the 275-plus pages of the TNC manual and decide to send the command LC OFF. Incoming messages are now displayed in upper case, while outgoing messages are in lower case. Great — until they realise that at one command they have destroyed one of Packet's claims to fame — the ability to send both upper and lower case.

In an effort to tidy up the situation, Packet stations resort to sending >> at the end of each short message — like an old-fashioned "over to you". It's only a hint, so the other fellow may not notice it or may not even know what it means. No such nonsense with AMTOR, where +? passes over the transmission with precision. What's more, an AMTOR receiving station can "break-in" at any time, enabling real conversation to take place, in a logical fashion. No long wait for an ACK signal, no confusion at the sending end where the AMTOR TU is promptly switched from transmit to receive.

*Continued page 12*

element broadside collinear mounted at about 5m above ground. The reader may question mounting this antenna so low when it is intended for such long distance communication. But remember the propagation on this route is Tropospheric Scatter, and if the antenna is high enough to clear forward obstacles its height above ground is unimportant.

Collinear antennas are superior to Yagis for troposcatter work. This is because of their large capture area. If Yagis are to be used for such work they must be stacked. If you doubt the efficacy of this design see what fringe area antennas are used for tropo TV in Australia.

This antenna looks very good, indistinguishable from the Hills CA-16 fringe

area TV antenna it's made from. In fact the driven element to reflector spacing of these antennas is just right for 2m. The antenna is modified for 2m simply by pop-riveting an extension to each element. (See Diagram.)

For 2m FM I use a 7/8 vertical. This excellent antenna, although used extensively in the USA, is not well known in Australia. A few people have tried extending a 5/8 vertical as an extra quarter wave does not give that antenna an unmanageable length; however, the results have been disappointing. My design gives a significant improvement over the 5/8, since it uses a phasing capacitor in order to phase out the current "null". I made mine out of surplus aluminium

tubing and incorporated a ground plane so that it could be mounted above the horizontal collinear. With this antenna I can work the Adelaide 2m repeater which is more than 200km from the QTH. It makes a great mobile antenna if you're looking for maximum range.

So there you are. Mine is an ordinary suburban back yard but I am still able to use all HF bands effectively. The design for the WARC/40/80 trapped dipole is especially effective for smaller blocks.

For further details, a SASE will bring a prompt response.

Refs "An antenna for those other bands", Electronics Australia June 1985 "160-meter Shortie", QST November 1966

ar

Let's face it — Packet on any band is NOT a conversation mode. If you're a one-way talker or simply want to send messages, good enough. Packet is a bit like Dorothy Parker's famous dance style — "a stumble, a slip, and a 20-yard dash". AMTOR on the other hand is a "human-dimension" mode with its 66 wpm maximum speed neatly matching that of a reasonable competent keyboard operator. It is robust and friendly — with the sender seeing exactly and immediately what the distant station receives. No irritating chore of watching for an ACK signal on a jumble of TNC LEDs.

What about Packet's other major claim to fame? In the magic jargon — "time-domain-multiplexed carrier-ensembled multiple-access digital communication". In other words, several QSOs simultaneously on a single channel. Monitor any 20m Packet channel and take a real look at what is happening.

Certainly there are call signs galore — many appearing at odd and distant intervals — much noise — scrappy bits of sentences, mostly repeated again and again because the other fellow didn't get it — earlier callsigns vanish as they time-out in exasperation — endless rubbish scrolls up the screen — there's even a bit of a beacon message from someone crazy enough to load the channel with more garbage.

The Packet solution on 20m has been to give up overcrowded 14103 and start another channel 2 kHz up, and then another and another. Bang goes the second claim to fame — the single channel where everyone can be found. And, of course, the inevitable is happening; packet QRM is spreading down, too.

Enter the PBBS — easy because the system is portable — an XT clone and few dollars for the diskette. The PBBS is a sure-fire guarantee of bedlam because the operator is rarely in the shack to monitor its antics. Pity the poor fellow who used to run an SSB Net at the lower end of 20. There is no way in which he can eliminate the racket because the PR black boxes thrive on QRM as they continue their demented retires.

HF Packet chaos is compounded by the fact that many PR stations have only the flimsiest of notions about the frequencies they are transmitting or receiving. Thanks to the magic of NRZI they can send on either USB or LSB who cares about Mark and Space? Few are able to tune accurately, even when they have tuning indicators on their TNCs. TNC indicators in any case are primitive devices, woefully ineffective on Packet bursts.

Miki Nakayama JR1SWB (JAMSAT design team) says that even if HF Packet

were run at 100 bps the 5 dB increase in power-per-bit would produce no significant improvement because noise on HF bands is not gaussian in nature. Current HDLC coding (ie AX.25), he says, can never be supported on a link with an error-rate between 10e-2 and 10e-3 (typical of HF) since there would be one bit error in even the shortest frame which would kill the packet immediately. The only solution, says Miki, would be to employ redundant coding (or error-correction coding) such as that used for the emergency communications link for Phase 3 satellites. Remember that Packet, and AMTOR for that matter, is an "error-detection" system only.

Karl Meinzer DJ4ZC (DARC Phase 3 design team) agrees that current modulation methods for Packet Radio are inefficient. He suggests that much of the attraction of Packet stems from the link-up of radio with computers, via the black-box magic of the TNC. In a way, he says, amateur radio has been led up a blind alley with AX.25, which does not lend itself to redundant coding.

There is now a vested interest, he says, in sticking to a dubious performer, since there is precious little chance of another TAPR/Vancouver-type campaign being mounted to design a better system.

The lesson to be learned from all this is that Packet Radio may be fascinating and fun for sending messages on VHF/UHF. It is NOT a real QSO mode and is grimly inefficient on HF, where AMTOR is ten times faster at getting messages through. Packet stations have now grudgingly agreed that AMTOR is the only way to send messages long-distance — hence the emergence of Packet/AMTOR Gateways.

What is disturbing to regular AMTOR users is that Gateway systems such as +APLINK+ are trampling on accepted AMTOR protocol by using mongrel packet-type commands and a CR/LF handover in place of the normal (and official) +? This is the result of trying to impose a Packet solution on an already-established AMTOR mode. The Packet tail trying to wag the AMTOR dog! A genuine AMTOR answer to the problem was set out with customary clarity and thoroughness by Peter in his description of the G3PLX AMTOR Gateway Mailbox in the Autumn '89 issue of DATACOM. Let's hope that +APLINK+ and others follow this good example.

Finally, a word of advice to newcomers to AMTOR. Since +APLINK+ is a cheap-and-easy Packet/AMTOR Mailbox and therefore commonly encountered, you may be misled into thinking that its user-unfriendly commands work also on genuine AMTOR Mailboxes. They don't! CR/

LF will NOT get your command through — so don't sit stupefied at the keyboard — send +? and the world of AMTOR is open to you. You will find most AMTOR Mailboxes have friendly, conversational commands bearing little resemblance to Packet's esoteric mumbo-jumbo. And when in doubt, HELP+? will soon put you right!

## Profile Colin Richards 9M2CR/GW3JET

Before retiring and settling in Malaysia, Colin was an engineer with British Telecom for 40 years. Of these, 26 were spent on secondment to ITU for work in developing countries in Africa and Asia. His task was to plan, build and sometimes run training centres for national telecoms administrations. He has worked in Kenya, Tanzania, Pakistan, Burma, Libya, Zambia, Nepal, Singapore, Bangladesh, Kuwait, Saudi Arabia, Iraq, Mozambique and Malaysia — collecting several exotic call signs on the way. As AP2CR in 1953 he was the first SSB station in Asia — using home-built gear. He is keen on AMTOR, tennis, classical music and reading. He says he is a squash player and a violinist with a promising past. His AMTOR Mailbox (sejal) NMCR has been in operation at 14078 (MARK) for the past 5 years and is well-known to VK callers. ar

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# THE KENWOOD TS-950SD HF TRANSCEIVER

EQUIPMENT REVIEW BY RON FISHER VK3OM  
"GAALANUNGAR" 24 SUGARLOAF RD BEACONSFIELD UPPER 3808

Kenwood's new super rig has arrived at last. I say that because it was confidently expected to be on show at the Dayton Hamvention that I attended in 1988. No doubt the same expectation was there in 1989. Well at least we picked the right type number. The TS-950SD has quite a reputation to live up to. Its predecessors the TS-930S and TS-940S have not only set standards of performance but also standards of desirability. Ask any amateur which rig he would most like to own and chances are the answer would be a TS-940S. Add to this the superb transmitted and received audio quality that these rigs can produce and you certainly have the formula for success.

The overall design and concept of the new TS-950SD is of course based on the earlier TS-930S and TS-940S. With the advent of the TS-940S, there were many new features added over the TS-930S, but I cannot think of anything that was left out. The TS-950SD however does not follow this principle entirely; you certainly get more features but some of the excellent operating aids of the TS-940S have been dropped.

## The TS-950SD Features And Functions

First impression of the TS-950SD is its size and weight. Just as the TS-940S was larger than the TS-930S, the TS-950SD is bigger again. Let's look at the overall dimensions. When I carried the box out to the car, I thought that I was puffing somewhat more than I should. After all it's only a transceiver. I later discovered that the packed weight is close to 30kg. The transceiver alone weighs in at 23kg. Over-all size is 409mm wide, 154 high and 446 deep. This last measurement is a whopping 96mm greater than the TS-940S. By the way, the overall weight is up 3kg. Before you buy a new TS-950SD, check the size of your desk.

The TS-950SD receives from 100 kHz to 30 MHz and tunes this range in 10 Hz steps. The large main tuning knob is weighted and has a good fly wheel effect but, as with the TS440/140/680 transceivers, the tension on the knob is now adjustable by holding the flange and rotating the control until the desired "feel"

is obtained. In addition to the main tuning control, a "VFO Channel" knob has been provided. Again this has the same function as the equivalent control on the TS-140/680, and allows the frequency to be stepped up or down in 10 kHz steps. This is a very handy feature to go from one end of the band to the other.

This control also acts as the memory channel selector when in the memory mode. Of course, it's also possible to select a frequency via the direct entry keyboard. The RIT/XIT has a range of  $\pm 9.99$  kHz and the offset can now be preset before it is actually switched in — a very handy feature. Of course, there are two VFOs and a new form of VFO switching has been incorporated. Amateur band selection has been greatly improved. Direct access to each of the bands has as usual been provided via the keyboard, but now the last used frequency on each band remains, so that a sked set up on a particular frequency is not lost when another band is selected. However, the one feature that really sets the TS-950SD apart from its predecessors is the dual receive capability. The "Sub VFO" as it is called enables you to listen on any other frequency within plus or minus 500 kHz of the main receiver. The sub receiver shares the front end of the main receiver but has entirely separate IF and audio channels. It also has a separate frequency

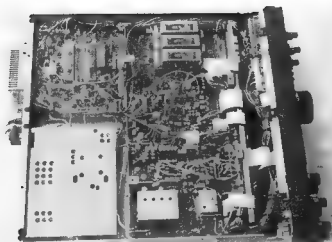
read out and, of course, its own tuning control.

The TS-950SD sports 100 memory channels and these are all accessible from the front panel. It's no longer necessary to open the hatch on the top to select the various "banks" of memory channels. The memories are now capable of storing all sorts of information in addition to the required frequency. All 100 channels can store frequency, mode and required IF filter combination. Channels 0 to 89 can also store tone frequency data and tone on/off data. Channels 90 to 99 can be set up as tunable VFOs with the band limits programmed. Many of these features have of course been carried on from those first featured in the TS-140/680 transceivers.

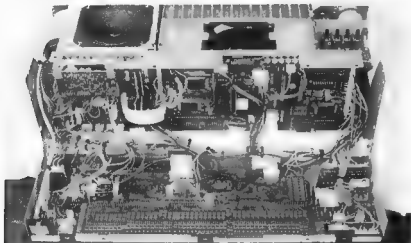
A new feature is the selection of the IF filters in both the 455 kHz and 8.83 MHz IFs from a front panel control. A total of nine filters can be fitted, and our review transceiver had a full complement. They are as follows; At 8.83 MHz bandwidths of 6k, 2.7k, 500 Hz and an LC filter (wide band). At 455 kHz the choice is 12k (FM only), 6k, 2.7k, 500 Hz and 250 Hz. As there are independent controls for each IF frequency, any combination of filters can be selected. Of course, with two filters of the same bandwidth selected, the actual selectivity will be less than either. Just how this works out in practice will be discussed later.



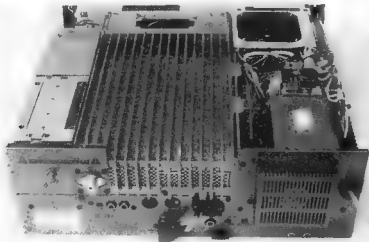
Here it is - the new Kenwood TS-950SD Digital



*Bottom view of TS-950SD Digital Note filter bank at top*



*Front panel drops down for easy access*



*Note the extra large final heat sink. Power supply cooling fan is on the left*

Another new feature is the meter, (or should I say meters?) The old analog moving coil meter is gone, and in its place is a multifunction fluorescent display meter. Now, before you start thinking of the LED type meters on VHF and UHF transceivers and that particular one on a certain HF transceiver of several years ago, let me explain. This is about the closest approximation to a real moving coil meter that you could imagine. It has all the advantages of an analog meter plus the instantaneous action of an electronic display. In addition, when in the transmit mode, up to three functions can be metered at the same time. The metering functions are; "S" meter, compression with speech processor operation, SWR with no forward setting required, ALC and Ic (transmitter final amplifier collector current). In the transmit mode, metering of RF power output is always on plus a choice of SWR and ALC, or compression and ALC, or Ic and either SWR or compression. The scales are very bright and easy to read. I can see that this is the way that future transceivers will be going. AGC selection now offers a medium delay position in addition to the normal slow, fast and off.

All the usual, and excellent, selectivity aids are included. These include the SSB slope tuning. This is a dual concentric 32 position stepped rotary switch providing adjustment of the lower and upper skirt positions in the SSB mode. The CW VBT is used for controlling the selectivity in the CW and RTTY modes, and a notch filter allows rejection of single frequency heterodynes.

The main digital frequency display is a good sized fluorescent type and is very easy to read. The 10 Hz readout is now normal and doesn't require connecting, snipping or switching to enable it. However it can be disabled if necessary. The digital/analog display under the main frequency readout can be set to give a full scale of either 1 MHz or 100 kHz.

There are three other frequency displays. Firstly there is the RIT/XIT. This is now capable of 10 Hz resolution as against 100 Hz on the TS930/940S. The two other frequency readouts to the right of the display area are the sub receiver readout and the transmit frequency display. (If split operation is taking place.) In between these and the RIT readout is the memory channel indicator. Also included in the main display area is the filter selection indicator, the VFO A/B indicator and the memory channel selection indicator. All in all, there is an indicator to tell you everything - except when it's time to eat.

Now what's missing compared with the TS-940S. That wonderful sub-dis-



play that actually told you what was happening with such varied things as the automatic antenna tuner. It contained a clock which could switch the transceiver on and off at selected times, and it gave a visual indication of the SSB slope tuning controls. These are all gone in the face of progress.

The increased size of the transceiver seems to be taken up by the extra large heat sink for the final amplifier. This is a large diecast panel than runs almost the entire depth of the rig. The cooling fan is now placed at the front—just behind the front panel. Air intake is through two small grills in the cabinet top panel. The cooling fan for the power supply is mounted at the rear, where its associated heat sink appears to be somewhat smaller than usual.

A speaker of reasonable size is mounted under the cabinet top cover, just behind the front panel on the right hand side.

## Subjective Tests On The TS-950SD

Our review transceiver was the fully-optional TS-950SD or Digital model. This included a full array of filters, the high stability master oscillator and the highly rated DSP-10 digital signal processor.

Initial setting-up of the transceiver is very easy. The only problem was getting it onto my desk. I certainly could not fit it where I have my TS-930S. It didn't take long to realise that the overall performance is very similar to my old TS-930S. However a few things stood out. The tuning knob on the TS-950SD actually spins a little easier than the TS-930S but I found that there was a small amount of horizontal slop in the control bearing. Hitting the edge of the knob to keep it spinning produced a disconcerting knock. I quickly checked the calibration accuracy on the BBC and Radio Australia on 21.7 MHz and found them spot on. Perhaps it's a good time to describe how this is done. I tune the station in the SSB mode, either upper or lower sideband until music sounds right. Note that speech will not do as 10 or 20 Hz variation will not be always evident, whereas this much error will be very noticeable on music. Now note the readout frequency, then change to the other sideband. If things don't sound quite the same you are off frequency. Of course, I am assuming that the BBC and RA are on the correct frequency. I think they are. Enough to say that the TS-950SD thinks that they are too. By the way, this test needs to be done at the highest possible frequency.

Tuning around, I got the impression that the received audio quality on SSB was not quite as good as my old TS-930S.

So, I set up the two transceivers side-by-side through a coax change over switch for some comparative tests. On a direct comparison, the received audio from the TS-950SD sounded rather muffled and no combination of IF filters changed the situation. I then decided to put the TS-950SD on to my noise and distortion meter and see what the story was. First the product detector distortion measured lower than any transceiver that I have yet tested at only .3%. Both the TS-930S and TS-940S measured around .6%. My guess is that the audio channel of the TS-950SD is tailored to cut off rather well down the high frequency end. This effect was also noticeable on AM where the response sounded very dull compared to the TS-930S.

It was now time to test the dual receive function. Firstly let's look at the two receivers. The main receiver is the one that has all the facilities like slope tune for SSB, filter selection etc. The "Sub" receiver has only one QRM reducing device, a noise blanker. It is a straight receiver with fixed SSB selectivity. However, for the purpose it's intended to fill, this is an excellent compromise. As it is controlled by the main synthesizer, the frequency stability and read-out accuracy is the same as the main receiver. The audio gain of both receivers is controlled by independent controls. I am not sure that this is an ideal system. Perhaps one audio gain plus a balance control might have been a better choice. As mentioned earlier, the "Sub" receiver only works over a +/- 600 kHz range of the main receiver. In other words, you are confined to the same band. I note with interest that at least one other make of transceiver is claiming full general coverage with their sub receiver—however this does introduce problems with antennas. If you have mono-band antennas which don't work very well on other frequencies, the actual sensitivity would be a long way down. If you are looking for dual band capability, a second transceiver might well be the easiest way around the problem (and cheapest). Having said all of that, the TS-950SD sub receiver works very well. I found that it was great for checking clear channels on 20 metres. I found it more satisfactory to listen to a clear channel than to try to listen to two conversations. However, it would be a great way to exercise your party ability to check the conversation next to you.

The most off-putting feature of the sub receiver is however the tuning control. The knob used is the same size and type as the RIT/XIT control and is just too small and fiddly to encourage much use. I forecast that, when the 960 is released (don't ask me when), this control will be

at least double the diameter, and hope fully also have some fly wheel effect.

Next, I tried out the transmit capability on both local and DX contacts. Kenwood make some interesting claims for their digital signal processor, and as it was installed in our review transceiver, it was a good opportunity to see how well it performed. It is claimed that the DSP 10 produces SSB signals of higher quality than normal through "modulation by the 10th phase shift network that digitally treats signals".

In the CW mode, "excellent characteristics are obtained through digital restoration of the wave shape".

Similar claims are made for AM, FM and FSK operation. The frequency response of the transmitted signal is adjustable via two rotary switches and four DIP switches in the DSP-10 unit, which is mounted in the bottom panel of the transceiver cabinet. These are really set and forget functions, as they are not readily accessible with the transceiver in normal use. For the purpose, I reasoned that if set to the widest response this would produce the best results. In the SSB mode, the High end can be set at 2600, 2750, 2900 or 3100 Hz. The low end at 400, 300, 200 or 110 Hz. In the AM mode it's interesting to note that the high end response is actually lower than SSB at 2900 Hz, but the bottom end can be extended down to 75 Hz. The response curves published in the manual show very sharp cutoff beyond these points. As I do not have access to a spectrum analyser, I cannot tell what effect the digital modulator has on the overall width or distortion of the transmitted signal. Certainly up to now, most distortion on SSB signals has been produced in various linear amplifiers in the form of 3rd, 5th and higher order intermodulation distortion. This could well be one area in which the TS-950SD excels with its new 50 volt operated final amplifier. However back to the test. I tried the TS-950SD and TS-930S in turn for comparative tests on dozens of contacts using my MC-60 microphone. The results are most interesting. 50% of the stations contacted stated that they could pick no difference between the two transceivers, and the other 50% said that the TS-930S sounded slightly better!

The manual also infers that the digital signal processor is also used on receive. I quote from the manual, "SSB Mode (received) AF slope tuning is provided by the digital filter, to suit the slope of this transceiver". If you know what this means please let me know.

I look forward to seeing an analysis of the digital signal unit taken on appropriate equipment in the future.

# THE LADDER FILTER REVIVED

LLOYD BUTLER VK5BR  
18 OTTAWA AVENUE PANORAMA 5041

In home-brewing a single sideband (SSB) transmitter, an essential requirement is a suitable intermediate frequency filter. Such a filter must have sufficient bandwidth to pass one sideband whilst having response shaped to attenuate the other. The ladder filter, using a number of crystal elements of the same frequency, has been popular in home-brew equipment as a means of achieving the required response.

Several articles in recent issues of *Amateur Radio* have dealt with these filters. Harold Hepburn (VK3AFQ) made use of such a filter in his building blocks and discussed their performance in the August 1987 issue. Rob Gurr (VK5RQ) is

well known in our region for his experimentation with home-brew circuits. In the November 1982 and January 1984 issues of the journal, Rob described experiments he had carried out on these filters.

Both Harold and Rob have referred to articles prepared by J A Hardcastle (G2JIR). The most useful of these is one published in the February 1979 issue of *Radio Communication*. In this article, a method is described by which the precise components can be selected for a given set of crystals to give a required bandwidth. The method initially entails setting up a test circuit with two of the crystals to measure a sample bandwidth.

Using this measurement as a reference, the circuit component values are then calculated to give the required bandwidth in the complete ladder filter. Coefficients are given which enable calculation of component values for filters containing three, four, six, or eight crystal elements.

The G3JIR article covers quite a bit of ground, but for those who might be interested I thought I would set out the G3JIR procedure in a simplified form and then follow up with some results of its application using sample batches of crystals. All in all, the procedure works very well, but to carry it out test equipment is needed to plot spectral response so that bandwidth

*Continued page 18*

The CW operator has been very well catered for on the TS-950SD. Let's run through the facilities. Firstly you have a variety of optional CW filters, but even if you don't feel inclined to purchase any of these, the IF VBT control is able to narrow the receiver to a degree that will satisfy all but the most ardent of CW operators. To back this up, the AF VBT adjusts the audio selectivity. There is also a CW pitch control which allows adjustment of the CW note without actually shifting the received or transmitted frequency. Semi or full break-in keying is available. An electronic keyer is built in and both manual and automatic weight adjustment is provided. In the auto position, either a longer dash for a slower keying speed or a shorter dash for a faster keying speed is selectable. If you are a keen CW operator then the TS-950SD has been built with you in mind. Talking about morse code, all mode selections are accompanied with the appropriate morse identification.

An improved automatic antenna tuner is built into the TS-950SD. This is capable of matching a load of about 20 to 150 ohms, or in other words an SWR of about 3:1 maximum. While tuning, the power output of the transceiver is set to about 10 watts to protect the final amplifier (and I suspect the ATU as well) while the system is unmatched.

The ATU now has a memory function that retains the setting for each band and it automatically retunes as the band is changed. I found that a match was obtained within about three or four seconds. Note that this ATU like many other

contemporary units is designed to feed an unbalanced load only. It is not designed to couple into a balanced feeder system.

Again, like the TS-140/680S, many functions can be modified as the transceiver is first switched on. Just to run through a few of them, VFO channel 10 or 5 kHz stepping, meter peak hold on/off, 1 MHz up/down changed to 500 kHz, beep tones on/off, program scan hold on/off. In all there are 17 different changeable functions that can be preset in this way.

Of course the TS-950SD is fully computer compatible. All that is required is the optional IF-232C interface. Most of the transceiver's functions can be controlled from your computer.

I note in the Kenwood advertisements that a new line of matching accessories have been released. A matching loudspeaker unit and a new matching monitor scope are included. I look forward to seeing each of these in due course. The existing range of Kenwood microphones are recommended for use with the TS-950SD and a standard MC-43S hand microphone is supplied as standard equipment.

One final point. I was surprised to find that the AC power cord now goes directly into the transceiver through a grommet in the rear panel. The handy IEC power connector has disappeared.

## The TS-950SD Instruction Manual

The instruction manual deserves high marks. Not 100% mind you. I still think

most manuals don't contain enough technical information these days, and this one is no exception. Operating instructions are in general well covered. There are 88 controls on the front panel which all require individual explanation, and this is done in a clear and concise manner. At the start of the front panel explanation section, a diagram of the front panel is shown divided into seven segments. Each of these segments is labelled with the page number where the explanation can be found. There is even a short (page and a third) technical description of the transceiver. There is information on the installation of the optional filters (950S) and a few basic adjustments.

## The TS-950SD Conclusions

I have to say that the new TS-950SD is not up to what I thought it might be. A few things didn't turn me on. I didn't like the very sombre black cabinet and front panel. (Very much a matter of opinion I agree.)

However, having said that, I am sure that this will again be a top seller for Kenwood. There is no doubt about it, this transceiver has the capability of giving excellent results in all modes, and for the keen operator it offers facilities not currently available in any other transceiver. Our thanks to Kenwood Electronics Australia Pty Ltd for the loan of our review transceiver. ar

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The FT-411 is a top-of-the-line ultra compact 2 metre handheld offering an incredible array of features without the size and weight of previous sets. Expanding on the microprocessor controlled features of previous models, the front panel multi-function back-lit keypad allows easy frequency entry, selection of the 49 tunable memories (which store repeater shifts, or separate Tx/Rx frequencies), setting of the programmable-interval 'power-saver' system, as well as a host of other convenience features. CPU control also offers 2 VFO's, rotary dial tuning with 5 selectable tuning steps, a multi-function back-lit 6 digit LCD screen with bargraph Signal/P.O. meter, and a range of scanning options. Even VOX (voice-activated transmit) circuitry is provided, allowing hands-free operation with the optional YH-2 headset.

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can be resolved. Access to a spectrum analyser or some form of sweep generator makes measurement simple but such devices are not usually available to the radio amateur. The minimum requirement is a stable signal generator and a frequency counter to set accurately closely spaced spot frequencies. Some form of device which can measure signal amplitude at the frequencies concerned, such as a calibrated CRO or a VTVM is also needed.

## The G3JR Procedure

The first operation is to connect up the test circuit with two of the crystals as shown in figure 1. Capacitors (C1) are set to an arbitrary value, suggested as 33 pF. The source resistance and load resistance are set to a value R which is calculated as follows:

$$R = \frac{0.613 \times 10^6}{2 \pi f C1} \quad (1)$$

where f - the crystal frequency in MHz  
& C1 - capacitance in pF

The source resistance is made up of the output resistance of the sweep generator, or the signal generator and an additional resistance to make up the total value of R. The output is terminated in a resistance, also equal to R, across which is connected the input the spectrum analyser, CRO or VTVM via a high impedance probe. The high impedance probe is used to prevent detuning of the circuit.

A spectral response curve is plotted and the 3 dB bandwidth (or bandwidth of signal within 0.707 of the level at centre frequency) is scaled off.

Filter bandwidth is approximately inversely proportional to the square root of coupling capacitance and from this relationship, a new value of capacitance (C2) is calculated for the required bandwidth (say 2.5 kHz) as follows:

$$C2 = C1 (BW1/BW2)^2 \quad (2)$$

where BW1 = Bandwidth previously measured  
& BW2 = The new bandwidth required

A new value of R is then calculated as follows:

$$R = \frac{0.613 \times 10^6}{2 \pi f C2} \quad (3)$$

Refer now to figure 2 and select the form of filter suited to the number of crystal elements it is proposed to use. (The higher the number, the sharper the filter but selection might depend on how many crystals one happens to have.) Apply the following formula to each ca-

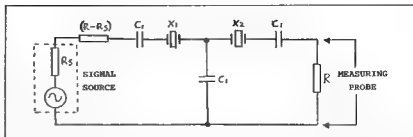


Figure 1 Test arrangement using two crystals

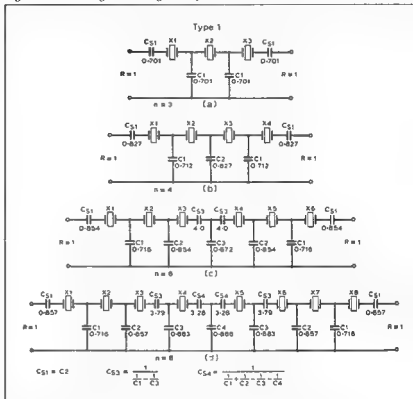


Figure 2 Capacitor coefficients for 3, 4, 6 & 8 crystal assemblies

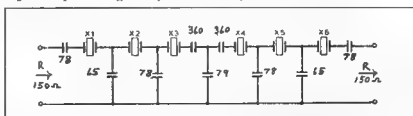


Figure 3 11.5 MHz Ladder filter - circuit diagram. Capacitor values in pF

capacitor element in the circuit selected:

$$C(pF) = \frac{K \times 10^6}{2 \pi f R} \quad (4)$$

where K = The capacitor coefficient shown in the circuit (fig 2)

f = Frequency in MHz

R = Source & load resistance derived in (3)

Wire up the filter using the capacitance values calculated. It might be necessary to parallel some preferred values of capacitors to obtain values close to those calculated.

The test circuit is again connected up but with the completely wired-up filter and with the new value of source resis-

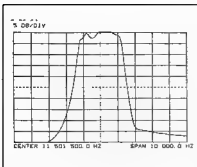


Figure 4 11.5 MHz Ladder filter unit 1 - Response

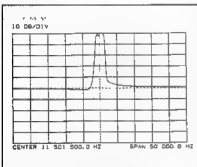


Figure 5 11.5 MHz ladder Filter unit 1 - Response (scales expanded)

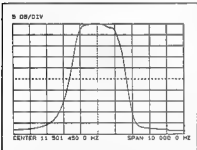


Figure 6 11.5 MHz ladder filter unit 2 - Response (same scales as Figure 4)

tance and load resistance (R) calculated from (3). The response curve is now checked and hopefully it should have the bandwidth required, with nice steep sides and high out of band attenuation.

## Choice of Crystals

The choice of crystal frequency is largely dependent on what crystals one can get at the right price. Frequencies within the range of 8 to 10 MHz seem to be the popular choice for amateur radio SSB use. The idea is to build the filter first and then design the transmitter around an intermediate frequency set by the filter. Crystals should be closely matched in their characteristics to ob-

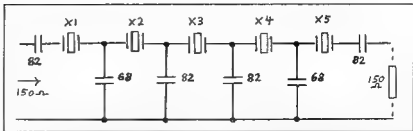


Figure 7 9 MHz (CB Crystal) ladder filter - circuit diagram. Capacitor values in pF

tain good results. The best one can do is to select a number of them from the same manufacturing batch. Some cheaply available crystals are those made in bulk for computers and CB radio. The CB crystals are used on third overtone at 27 MHz and have a fundamental frequency around 9 MHz. Batches of crystals often come up at amateur radio buy and sell marts and are worth watching out for at those sales. Some of the crystals discussed in this article came from such a source.

Not all crystals have characteristics which enable a suitable bandwidth to be obtained for SSB. Tests were carried out on one batch of FT243 style crystals, with a frequency around 5 MHz. Using these, the capacitance values calculated for 2.5 kHz bandwidth proved to be unachievably small. The widest bandwidth achievable in practice proved to be around 1 kHz using capacitance values in the order of 15 pF.

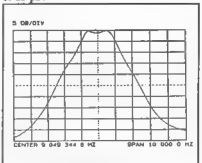


Figure 8 9 MHz ladder filter - response

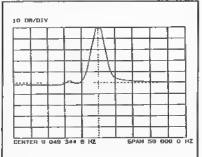


Figure 9 9 MHz ladder filter - response (scales expanded)

## Some Practical Results

Two sets of 11.5 MHz filters, each with 6 crystal units, were made up using the G3JIR procedure. A further 9.05 MHz filter using five 27 MHz third-overtone crystals was assembled. The G3JIR procedure was also used for this filter except that a little guess work was applied in selecting the K coefficients. This was because no reference could be found for the use of five crystals in a filter but five was the total on hand. All the articles referred to four crystals or six crystals but not five. In applying expression (2), a value of  $BW2 = 2.5$  kHz was used in each filter calculation.

The capacitance values calculated for the 11.5 MHz units are shown in figure 3. The performance achieved using capacitors trimmed to near these values are listed as follows:

<b>Unit 1</b>	
Centre Frequency:	11.501500 MHz
3 dB bandwidth:	2.18 kHz
6 dB bandwidth:	2.49 kHz
Bandwidth of 45 dB down:	4.9 kHz
Out of band rejection:	52 dB
Passband ripple:	Refer figure 4
<b>Unit 2</b>	
Centre Frequency:	11.501450 MHz
3 dB bandwidth:	2.01 kHz
6 dB bandwidth:	2.33 kHz
Bandwidth 45 dB down:	4.9 kHz
Out of band rejection:	48.5 dB
Passband ripple:	Refer figure 6.

Figures 4 and 5 show the spectral response of No 1 unit 11.5 MHz filter. Figure 4 has scales of 1 kHz per division and 5 dB per division whereas figure 5 has scales expanded to 5 kHz per division and 10 dB per division. Figure 6 shows the response of No 2 filter with the first scales.

The passband ripple is more pronounced in No 1 unit than in No 2 unit. They were all the same type of crystal but perhaps the No 2 batch were a little better matched than No 1 batch.

Figure 7 shows the capacitance values selected for the 9 MHz filter. This produced the following performance figures:

# MOUNT MINTO - ANTARCTIC BICENTENNIAL EXPEDITION

DON RICHARDS VK2BXM/VK9AT  
THE SKI INN SACKVILLE ROAD EBBENEZER 2756

Inland from the coast of the Ross Sea, Antarctica, Mount Minto has long been a challenge to mountain climbers. Some of the features that make it attractive to people who enjoy adventure are these: At 4,300m, it is one of the tallest peaks on the continent, the period of time during which it can be approached is limited to a few weeks each year and approach and access are difficult and dangerous. Assuming a climbing party can get ashore, and there are only one or two suitable landing spots, the climbers then have to get up on to the ice shelf and find their way along the maze of glaciers leading towards the summit. They may have to travel 300km to reach the mountain and return, so food, tents, and equipment to see them over that distance, plus whatever is necessary for a margin of safety have to be taken.

There have been two unsuccessful attempts on Mount Minto in recent years, each by a group of climbers from Austria. Their first attempt, in 1986, ended in disaster when the ship carrying them, the Southern Quest, was caught in the ice in the Ross Sea and sank. No lives were lost and they tried again the following year. This time they were delayed by the late arrival of their charter ship at Christchurch and missed the short summer period when there is some chance of making a landing on the coast of the Ross Sea. So they never left Christchurch for

the south and returned home, disappointed but anxious to try again.

In 1984 a group of Australian climbers made an ascent of Mt Everest, the first by an Australian expedition and the first ever without oxygen. A leader in that group was Greg Mortimer and he had been discussing a plan to climb Mount Minto with the Directors of the Oceanic Research Foundation for several years.

The ORF owns the steel schooner, the *Dick Smith Explorer* and in her had already made three successful voyages to the Antarctic. It seemed that if there was to be a first for Australia in the Bicentennial year, now was the time for the Mount Minto Expedition to get going.

So on the last day of 1987 a tiny red schooner cleared Sydney Heads and set course for the Ross Sea, Antarctica, about



Another view of the Allan and Vi Thistlethwayte. Note 6m vertical mounted on handrail

Centre Frequency: 9.049345 MHz  
3 dB bandwidth: 1.94 kHz  
6 dB bandwidth: 2.3 kHz  
Bandwidth 45 dB down: 9 kHz  
Out of band rejection: 60 dB  
Passband ripple: Refer figure 8

Figures 8 and 9 show the spectral response of the 9 MHz filter using the same scales as those used for the 11.5 MHz filter in figures 4 and 5.

Both the 11.5 MHz units and 9 MHz units were operated with a source resistance and load resistance of 150 ohms. It was coincidence that the calculation of R in both filters worked out to near this value.

Referring to each of the response curves, the side slopes of the 11.5 MHz units are seen to be much steeper than those of the 9 MHz unit and hence the 11.5 units would make better SSB filters

to reject the adjacent sideband. One could offer conjecture as to why the 9 MHz unit did not perform quite as well as the others. Perhaps the crystal Q factors were lower or perhaps the choice of K coefficients was not quite correct. Apart from that, there was one extra crystal in the 11 MHz units to improve the shape.

One observation is that each of the filters produced a 3 dB bandwidth of near 2 kHz for a value of BW2 selected as 2.5 kHz in expression (2). Bandwidth BW2 applies to the two crystal test filter of figure 1 and based on the results achieved, one must conclude that this bandwidth value should be selected around 25% greater than that required for the complete filter with five or six crystals.

## Summary

Because of the spread of characteris-

tics in different batches of crystals, one cannot connect up a number of given crystals in a ladder circuit with a pre-allocated set of capacitance values and expect to obtain a specific pre-determined performance. Capacitance values must be selected to suit the particular crystals used and the G3JIR procedure outlined is a reliable method of determining these values. The procedure involves the use of some measuring techniques but these are well within capacity of the experimental radio amateur who has access to suitable test equipment.

Providing a cheap source of closely matched crystals can be obtained, construction of the ladder filter is an economical way of obtaining a wide band but selective filter for such applications as SSB. ar



*Held by pack ice near the entrance to the Ross Sea. Don VK2BXM contemplates the situation*

2,500 nautical miles away. On board were 11 people, together forming a mountaineering group of six and a ship's crew of five. They carried provisions for 12 months and equipment for a 300 km ice-traverse, including a motorised sledge. The ship, originally the *Dick Smith Explorer*, had been renamed the *Allan and Vi Thistlethwayte*, in honour of a generous sponsor and his wife.

## The Plan . . .

There are two possible approaches to Mount Minto from the sea. One is to land on the western side of Cape Adare and for a mountain party, by a route not yet discovered, to make their way to the ice-cap and then to follow glaciers to the foot of the summit. To reach the ice-cap would be difficult, if not impossible as the rock is sheer and the ice-cliffs almost vertical. However, there is a reasonable possibility of the shore-line being accessible, so the mountain party could at least get ashore, although they could then be confronted with a major problem.

The preferred approach is from Cape Hallett, further south and in the Ross Sea proper. Cape Hallett is the site of an abandoned joint USA/NZ base. Most of the buildings have been removed and the penguins have regained their rookery. It lies on Adisto Inlet, in Moubay Bay and at the head of the inlet is Football saddle. Over the saddle is the Tucker glacier, leading towards Mount Minto, fed by other glaciers leading to the foot of the summit. Cape Hallett could be frozen-in and unapproachable, but was the first place to have a look at, Cape Adare being a bad second.

The plan was for the mountaineers to set off from the ship as soon as possible

after landing, reach the foot of the summit, establish a base camp, make the climb and return. The ship would wait at the landing spot, weather and ice permitting, or else put to sea and hope to get back in again when the party returned. All this could take 3-4 weeks, leading to the time when the ice was growing out from the shore-line into the freezing ocean, trapping the ship if she stayed in or preventing her from getting back if it were necessary to put to sea whilst the mountaineers were away.

So, that was the plan, and for it to succeed in the light of all the things that could go wrong, good radio communication was essential. As skipper of the ship and also radio operator, I had a deep interest in making sure that we were able to maintain good communication with both the outside world and the mountain climbers once they were ashore.

## Radio Communication . . .

For a ship of her size (20m overall), the vessel is fairly well equipped. The normal ship's radio consists of two crystal controlled Stingray transceivers, installed in 1981, feeding a wire antenna through an EAT300 manual ATU. This all works quite well, the EAT300 giving a match from 2MHz through to 15MHz, but of course we are limited by the frequencies of the crystals fitted. On our last four or five voyages, including the last two voyages to Antarctica I have used on the amateur bands a Kenwood TS-430S and this was installed for the trip. We carried in addition a Kenwood TS-680S, a TR-751A for 2m, a 6m linear, and Harbour Control VHF gear; the lot in-

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stalled and ready to go!

For this expedition I put up an additional long wire antenna, a trapped wire for 80m for use until we were well away, a 20m dipole and a 6m vertical. Stowed in the engine room was a 6m Yagi for use on arrival. For work on shore were numerous hand-helds and light-weight equipment loaned by Codan and the Australian Antarctic Division. Everything was checked and tested before we left.

During an expedition to Commonwealth Bay, Antarctica, in the summer of 1984/85 I had tried to make contact with Australian amateurs on 2m sideband using about 100w and a beam set up on the after-deck whilst the ship was moored in Mawson's Boat Harbour, almost alongside his huts. This had not resulted in any contacts so Roger Harrison suggested that this time I should give 6m a try.

An amateur on Macquarie Island, which is about the half-way mark between Sydney and the Ross Sea, had already established contact with Australia on 6m during, I think, the previous year, but operation on that frequency had since been discontinued. Hence, the TS-680S (with its 6m facility) and the linear, with attendant antennas. The TS-680S would also be back-up for the TS-430S on the HF amateur bands, although that unit had not missed a beat (and hardly a sked) in the past. The 6m vertical was for use at sea, the 6m Yagi to be assembled and set up on shore or on the ship when we arrived.

Based on my previous experience, I did not expect to be able to pass traffic to Australian Coastal Radio stations once we were well away from the coast and I was relying on daily contact with Lee, VK2LW, to pass position reports, news and family messages. The IPS in Sydney had given me frequency predictions for the voyage south, for the period when we were likely to be at anchor and for the return voyage. I had information on frequencies normally used by the Australian, New Zealand, USA, Italian, French and Russian Antarctic bases, the ship *Greenpeace* and the *Greenpeace* base. I had made arrangements to contact Sojo, ZL5BA, who was travelling on the ship *Greenpeace*, making for their base in the Ross Sea, where he would be radio operator for the coming 12 months.

## The Voyage South

... went well. Departure from Sydney was somewhat later than originally planned which meant that the expedition time frame was compressed as we had to be out of the Ross Sea on the way

home before it started to freeze with the coming of winter.

At sea on 8 January 1988 on 52.050 MHz I worked two NZ stations, ZL3THM and ZL3TOT at position 43deg 41m S, 162deg 26m E, and on 11 January 1988 I worked VK2XJ and VK2VC on the same frequency at position 48deg 24m S, 153deg 50m E. On these contacts we were about 900 nautical miles from Christchurch and 800 nautical miles from Sydney. Contact was made each night with VK2LW to pass a position and situation report. If conditions were reasonable people on board would pass messages back to family and friends and talk with them if they visited VK2LW or a neighbouring amateur. As time went on Les gathered quite a group of interested amateurs around our frequency and I had contacts with many Australian and European amateurs. This was a pattern that continued throughout the expedition.

Communication was established with Macquarie Island on the commercial band as we sailed south. I had originally planned that our course would be to the west of Macquarie but as we approached the island gales from the west looked like forcing us dangerously close to its coast so a course change was made to take us north of the island and south along its east coast. Communication was good with Macquarie, the operators helpful and friendly and we were able to hold contact until our final approach to the Antarctic continent. They passed a daily weather forecast to us and the fact that it usually accurately predicted strong winds and rain from the west was not their fault.

About one day's sail from landfall at Cape Adare, we got stuck in a band of ice lying across the entrance to the Ross Sea. Colin Putt, my mate and ship's engineer, had often talked about what we would do if confronted by pack ice and we had decided "keep out of it". The ship, although stoutly built, is not ice-strengthened and to damage or lose her in dangerous conditions in a remote area could mean the end of the expedition and those on board. The sinking of the *Southern Quest* in the Ross Sea was still fresh in our minds. However, when we were confronted by ice, so close to landfall after almost four weeks at sea and pack that held some promise of leads to the south, we entered it and tried to push and shove our way through. Twelve hours later and a lot of red paint on the ice from our hull, we could go no further. Open water was visible to the south less than a kilometre away, but we were held firmly by pack that was starting to freeze together as the night temperatures fell. To help

things along it started snowing.

I reported our position and situation to Les, to the ship *Greenpeace*, to the Italian base at Terra Nova Bay, to the USA icebreaker *Polar Star* and to the USA base at McMurdo. In fact, to just about everyone I could contact. So there we sat, the weather worsening, the crew stretching their legs on the ice, penguins and seals looking on and everyone wondering how it would all end up.

It ended about 36 hours later, with the ice parting to the south and a lead opening that allowed us to push our way through into calm, open water. Then I got back on the radio to tell everyone that we were out of the ice and to stop worrying.

On Monday February 2nd, 31 days after leaving Sydney, our ship was moored to the ice-edge inside a rocky spit at Cape Hallett and goods were being unloaded in preparation for the climb of Mount Minto.

## The Approach

... to Mount Minto from our anchorage in Edisto Inlet was across the sea-ice to the head of the inlet, over a saddle and on to the Tucker glacier, then along the glacier to its intersection with the Man-of-war glacier, and along that glacier to the foot of Minto. The plan was to use a motorized sledge, called a skidoo, to haul smaller sledges carrying the expedition's supplies.

The mountaineers carried two radios, one a portable of about 10 watts output and the other a hand-held of less than 1 watt. Skeds were set up for each evening, with various other times and frequencies nominated in the event of being unable to make contact.

In making the hard haul over the saddle to the glacier, the skidoo used much more fuel than anticipated, so two climbers returned to the ship in the skidoo for further supplies. They left the skidoo at the head of the inlet and we were able to pick them up in the inflatable boats, as the ice was starting to move out of the inlet. Overnight, it cleared completely and when they returned next day to where they had left the skidoo, there was open water. Either the skidoo had floated out to sea on a floe or it had fallen through the ice to the bottom of the inlet. During this time the ship was in good communication with the climbers and the returning party, so everyone knew what was happening as it happened. This enabled the leader of the party, Greg Mortimer, to change the programme and prepare for a man-haul to the foot of the summit. Again, we were trying to cram more into the time frame as it would obviously take longer to reach the foot of the mount and the ship still had to be out of the Ross Sea before



the ice came in again.

Each night we spoke to the mountain party from the ship and plotted their position as they moved slowly up the Tucker glacier. We gave them weather forecasts and messages from home; they gave us their position and plans for the next day. Two weeks after leaving the ship they were camped at the foot of Mount Minto waiting for the weather to clear for the final climb. Meanwhile the ship *Greenpeace* was making for Cape Hallett to carry out an inspection of the site of the abandoned USA/NZ base there. Radio contact had been established with *Greenpeace* several weeks previously and they had been following our activities closely, sometimes joining in the evening skeds with the mountain party. They were the main source of our weather and ice reports and we were looking forward to meeting them and directly thanking them for their help. We were to owe them more before leaving Cape Hallett.

During Thursday February 18 the mountaineers made the ascent of Mount Minto and when we spoke on the night of the 19th they were back at the camp on Man-o-war glacier. They did not carry a radio on the last part of the climb and carried only enough food to allow themselves one day's delay in the event of foul weather.

Time was now pressing us as sea-ice was starting to form and we had moved out of our secure anchorage as it was freezing over and the ship would be trapped. A gale had been blowing for several days and we had been motoring around the inlet trying to get the anchor to hold on the rocky bottom without success. We found the best way to shelter from the wind was to get in the lee of a berg or ice cliff, put the bow of the ship into it and keep the engine running slowly in gear. In view of all the circumstances and the fact that the climb was over, I asked *Greenpeace* if they would bring the climbers and gear back to the ship by helicopter. This they agreed to do without hesitation and prepared the larger of their two helicopters for flight as soon as the weather cleared. This plan, together with instructions for preparing a landing pad and wind indicator for the helicopter was communicated to the mountain party, who were moving slowly down the glacier, with the prospect of a long cold walk ahead.

During the morning of February 23rd the climbers and their gear were ferried in several loads to *Greenpeace*, where they had their first hot shower in months and then back to our ship. We prepared to leave immediately and by that afternoon were out of the inlet and into the Ross Sea.

Throughout the three-week period that the climbers were on shore we had been in communication almost every day by radio and at all times knew where they were and what their plan was. We passed personal messages back and forth and made the arrangements for their quick and safe return to the ship after the climb.

## The Voyage Home

... started off in near disaster. Within hours of leaving Cape Hallett the ship was in a full gale from the south. The climbers were weary and short of sleep but rest was not possible. Twice the ship was laid on her beam-ends, masts in the water and a terrible mess inside. The storm sails were torn and frozen stiff and the motor could not keep our head to the wind. So for three days we were heave-to, being slowly pushed north, with little control over the situation. At one time we were in danger of being forced down on to a huge iceberg and I was reluctant to engage the engine to take us clear as a broken halyard had wrapped itself around the propeller shaft and we had not had the chance to free it. The storm sails were frozen and tore as they were hoisted. So it was the motor or crash on the iceberg. When Colin Putt engaged the motor, the broken halyard wound itself around the propeller shaft and the free end, which was up the mast, became jammed behind the radar dome, whipped it from the mast and shot it into the Ross Sea!

Radar was a critical part of the watch-keeping at that time as there were several hours of darkness each day and we were still in iceberg country, so without it we had to heave-to during hours of darkness and make north as quickly as possible during hours of light.

The gale lasted five days and we emerged with sails that had to be mended, mess to be cleaned up and no radar.

As we slowly progressed north we moved out of iceberg territory which meant that we could sail during the lengthening hours of darkness. I re-established contact with Macquarie Island and the nightly skeds with VK2LW continued. I kept in contact with *Greenpeace* although our paths had now diverged and she was moving west towards the French base Dumont d'Urville.

The return voyage was to include a stop at Macquarie Island which most on board were looking forward to. There were letters to be posted, friends to meet up with and a second hot shower in three months. Colin and I were not keen on stopping at the island as there are no mooring facilities and the loss of the *Nella Dan* was still fresh in our minds.

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AMATEUR RADIO, March 1990 -- Page 23

However, as we continued north it became apparent that Macquarie Island was going to be a very difficult place to reach. The ship was unable to make headway due to gales and high winds that blew directly from where we were trying to go. We would make some progress in the right direction, then a gale would blow for several days and we would be back where we started a couple of days before. This was a most unusual weather pattern for that time of year, when you would normally expect strong winds from the south-west. Later analysis shows that we were probably experiencing a weather pattern influenced by a cyclone off the east coast of New Zealand.

Macquarie Island lay on the track to Sydney, so we were simply making no progress in the direction of home. To add to our worries the fresh water tanks were not so full as expected. One of the three tanks had been discharging through a leaky valve into a tank from which we had been drawing and therefore, we found it empty when the time came to switch to it. With care there was sufficient water to reach Sydney under normal circumstances, but circumstances were anything but normal; the sails needed constant repairing, the winds were contrary, water was running low and I was wary about making an approach to any other islands, such as Auckland or Campbell, even if we could reach them.

We carried no detailed charts of New Zealand so I asked *Greenpeace* for the Pilot instructions for entering Bluff, a port on the southern tip of New Zealand. The skipper of *Greenpeace*, Jim Cottier, read these back to me and it sounded a difficult and dangerous procedure. So the decision was made to make for Lyttelton, the port for Christchurch on the east coast of the south island of New Zealand, which was further away than Bluff but well marked by lights and straightforward to enter.

*Greenpeace*, Les and Macquarie Island were told of the change of plans and away for Lyttelton we went, caught in a weather pattern of fair winds that carried us over the 600 nautical miles in just over five days.

For reasons that I don't understand I was unable to make contact with New Zealand coastal stations via ship-to-shore radio. Also for reasons I don't understand, I found difficulty in making contact with NZ amateurs. Even when I did, I was told that the amateur with whom I was in contact could make one contact only with me, answer three questions and accept no third party traffic. However, on the last days of the approach to Lyttelton I was able to advise Harbour Control, through a very effective VHF

repeater about 100 nm south of Lyttelton, of our plans and ask for berthing space and other facilities. The welcome and cooperation that we got on arrival, after 27 days at sea, made up for the somewhat chilly interchange on the airwaves. As soon as I could get into Christchurch I got a temporary amateur licence for a few dollars, which apparently legalised our amateur station in New Zealand, and kept up the evening skeds with VK2LW.

## The 6m Project

... suggested by Roger Harrison was aimed basically at establishing contact between the continents of Australia and Antarctica. Any other contact from Cape Hallett would have been welcome, but an amateur group had been alerted by Vince Angus, VK2VC and it was towards the east coast that I aimed the Yagi.

Each day (there was no night) at 2100hrs K, all through the month of February, whilst the ship was moored alongside the ice at Cape Hallett, I called and listened on 52.050 MHz, the liner feeding the Yagi, which was set up on the wheelhouse roof and pointing at the east coast of Australia. I called on phone and slow CW, and kept it up for at least 15 minutes. I would also listen and call at odd times during the day, when I was passing the transceiver on the way down to the galley or working at the chart table. I would listen on beacon frequencies at various times in case the band was opening. At times I thought I could hear something; at other times I knew that I was imagining it. No contacts resulted,

but for the record, below are dates when there were recognisable but very weak signals:

Thursday,	11/2/88, 2100hrs	Slow Morse
Saturday,	13/2/88, 2100hrs	Slow Morse
Tuesday,	16/2/88, 1300hrs	Possible Phone

One of the major disadvantages I suffered was being unable to mount the Yagi clear of metal spars and rigging. It had to be mounted on the ship as it would not have lasted more than a few minutes mounted on the ice due to high winds. It had to be strongly and frequently guyed and no doubt was not able to give of its best due to the surrounding metal. If I ever repeat this experiment I think I would use a beam constructed for the conditions and use "dead men" or some kind of anchor to lock the guy points into the ice.

## The Part Played by Radio

... in the expedition was critical. To safeguard against the various calamities that could befall us, to guard against one group taking an action that could be misinterpreted by the other, to get regular weather and ice information, meant clear and reliable lines of communication. This we achieved using quite standard equipment and skilled and patient operators.

For further information, particularly a map of the route taken by the expedition, see "Manhaul to Mt Minto" by Lincoln Hall, Australian Geographic No 12 Oct - Dec 1988. ar

## Cosmonaut Hooked On Amateur Radio

JIM LINTON VK3PC

The MIR space station cosmonaut Musa Manarov, who delighted the amateur radio fraternity with his contacts using the callign U2MIR while in orbit during November 1988, is eager to continue his amateur radio activity. He entered more than one thousand calligns in his log book. Musa, a then raw beginner to the ways of amateur radio, found himself the most sought after contact throughout the world.

In an interview for *Radio magazine* in the Soviet Union, he said: "Once I nearly got a fever from the exhaustion and stress of picking calls through the QRM." His mission on the space station lasted 366 consecutive days and achieved a world record stay in orbit. Musa was really hooked on amateur radio and trained his fellow crew members Vladimir Titov U1MIR and Valery Polyakov U3MIR.

There had been some reports of activity from U1MIR and U3MIR, and indications that cosmonauts Aleksandr Volkov U4MIR, and Sergey Krivalev U5MIR may also have been on air. There was nothing confirmed about any Australian radio amateur having worked these other cosmonauts. They were mainly Russian-speaking unlike Musa whose English was quite good.

Since coming back to earth, Musa has had very little leisure time, but intends to continue his amateur radio involvement. He hopes to be granted U2MIR as his personal callign. I don't be surprised if it appears on the HF bands soon. Simply on the basis of his excellent job of being an ambassador in space for our hobby, and the MIR operation which achieved widespread media publicity, Musa deserves to hold the callign. He also hopes one day to be back in space as part of a future MIR crew. mr

# VNG'S CODE AND THE LEAP SECOND

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## Prologue

We entered the front door of the ABC studios in Northbourne Avenue, Canberra and people greeted him from all sides. Graham Conolly VK2BL was back in one of his old stamping grounds. It was 11 am on 6th December 1989. We were ushered into Studio 101.

Graham's assignment was not to read the news but to record the leap second voice announcement for VNG. Harvey Conroy VK1HC, also a WIA member, was at the controls in the annex to the studio. His duties included monitoring the level and driving the reel-to-reel tape recorder. All three of us were pleased to be participating in this next step in VNG's history.

Two practice runs and the tape was ready to roll.

"Three, two, one, \_\_\_\_\_. This is VNG, Llandilo, New South Wales, Australia on 5, 10 or 15 Megahertz. VNG is an Australian standard frequency and time signal service. Your attention, please! In accordance with international agreement, VNG time signals will be retarded by precisely one second on the First of January at zero hours Coordinated Universal Time."

Graham worked hard. Six readings of the same announcement while timing himself strictly with a sweep second hand so that the announcement would not be too long and get clipped.

Finally, he put the script down. "Is it alright?"

"Ooh, yeah!" Then in an aside to his colleagues, another Graham, who was going for his full call in February and had a WIA membership application paper in his bag (I asked), Harvey remarked: "I am just saying to Graham, the future ham here, that this is the clearest reception of this VNG that we are ever going to have." Finally he said to me: "I hope this gets into the WIA magazine!"

So this prologue is a tribute to VK1HC, VK2BL and the future VK1! But what was the purpose of the exercise?

## The Leap Second and DUT1

Coordinated Universal Time (UTC) is the time scale used for VNG and is the basis of civil time. Its time intervals are



Graham Conolly VK2BL at the ABC studios, Canberra, recording the leap second voice announcement for VNG.

kept constant by reference to atomic (caesium beam) standards.

Astronomically-derived Universal Time (UT1), or Greenwich Mean Time (GMT) is tied to the Earth's rotation, the rate of which is not constant. In recent years it has been slowing down. Because

of this, occasional step adjustments of precisely one second, known as leap second adjustments, are made to UTC so that it does not differ too widely from UT1. This is why the last minute of 1989 was 61 seconds long.

DUT1 is UT1-UTC. The DUT1 code on VNG (January AR, page 61) gives the value of DUT1 to the nearest 0.1 second. You can work out its value by counting the number of seconds markers which have a double tone (sound like "bleeop"). If, for example, three consecutive seconds markers are bleeops, the value of DUT1 is 0.3 second. If six have a double tone, DUT1 is 0.6 second.

The sign of DUT1 is given by which seconds markers have the double tone. If they start with seconds marker one, then DUT1 is positive, meaning that UT1 is ahead of UTC. This happens after a leap second has been inserted into UTC. The sign of DUT1 is negative when the first double tone seconds marker is seconds marker nine. Because of the present slowing down of the Earth's rate of rotation, DUT1 becomes progressively more negative until a leap second adjustment is made.



Harvey Conroy VK1HC at the controls during the recording of the VNG announcement.

# PITCAIRN ISLAND BICENTENNIAL 1790 — 1990

By DR G O'TOOLR KB6ISL QSL MANAGER  
AND SUZANNE MORELL

"Ahoy Captain!! Land ho — ten degrees starboard". Ah, those words that me good friend uttered 200 years ago on one of the most famous and historical ships ever to set sail. Hello mates, me name is Fletcher Christian, and I've come to tell you's all of the beauty of one certain island. Me and me band of mutineers, numbering nine, seized the HMS Bounty, previously known as the HMS *Bethia*. Yes, we seized that there ship from Captain LT William Bligh in 1789.

Later, on 15 January 1790, me nine mighty mutineers, along with twelve Polynesian women and six Polynesian men, sailed onto the shores of Pitcairn Island weighed anchor. Incidentally, that there spot is now known as Bounty Bay. On 23 January, just eight short days

later, me men set fire to our beloved *Bounty*. While I, napping on an island's grassy knoll suspected nothing.

Me men are God-fearing men you see, who are loyal through and through. I've taught them always to follow their hearts, the ever possible idea of voyaging back to England to once again face the tyrannous, cruel wrath that me Captain's hand possessed. It also represented, their newly found and cherished freedom.

As for me, I tried to salvage the wreckage, but the roaring flames that soared from the deck to the upper masts were colossal! I tried to save the ship that still held me pride and love for it captive in its planks, but me trials were in despair amid this new yellow light. This light, that greedily consumed everything within

its reach, and hungrily devoured more and more. At least, me Church of England Bible was saved, for me people to use in later years

As the ship sunk deeper into the sea, the idea of leaving this uninhabited island sunk with it. Little did I, or me men know what importance our landing would bring

That there night, me mates, when my body was badly burnt, I fell deeper and deeper into a sleep, I knew I'd never wake from. But don't fret, my friends, for me spirit lived on in the mind and soul of every being on that there island. Me spirit still lives there among the hearts of me people, and it lives on today as I tell you this here tale.

The common belief surrounding our burning the *Bounty* was rumored as so as

## Custodians of Coordinated Universal Time

The Bureau Central de l'ERS in Paris has the responsibility of deciding when a leap second adjustment should be made. It is always done at the end of a month. First preference is given to the end of December and June; second preference to the end of March and September. The previous leap second was inserted at the end of 1987 (UTC).

AUSLIG's Ororral Geodetic Observatory in the ACT is the custodian of UTC in Australia. It is also the organisation which is officially responsible for the funding and monitoring of VNG.

## Using VNG's Time Code

VNG's time code was published on page 61 of January AR. The BCD time code gives the day number of the year, the hour and the next minute. If you do not want to go to the trouble of deciphering it, you may find the following information useful for working out of the time. All you need, apart from your radio receiver, is a watch accurate to two minutes.

The minute is marked by a long beep. Most of the seconds markers sound like shorter beeps. The marker of the second immediately preceding the minute is

missing. The markers of the four or nine seconds preceding this are clipped and sound like "tock" instead of "beep". For most of the time there are only four tocks near the end of the minute but during the fifth, tenth, fifteenth, etc minutes, there are nine tocks preceding the minute marker. So, when you hear a minute marker preceding by nine tocks instead of four, you know that it is minute number five, ten, fifteen, etc. Provided that your watch is accurate to two minutes, you'll know which one of these it is. To double-check, listen for the VNG station identification announcement as this is given during the fifteenth, thirtieth, forty-fifth and sixtieth minutes.

I hope you'll find this information helpful. As an earthquake seismologist, I have successfully used this technique for years to set the clocks in field seismographs (earthquake recorders) in out-of-the-way paddocks, meatsheds, shearing sheds, etc, even though I cannot guarantee the accuracy of my ageing, analogue wrist watch to any better than two minutes. With VNG, I have not needed to buy a better one!

## Reference

VNG. Standard frequency and time signal service. Reference Measurements Section, Telecom Australia Research Laboratories. December 1981.

## Stolen Equipment

Stolen from the home of D Canning VK3JDO 32 Beaconsfield Rd Briar Hill 3088 on 17/11/89.

ICOM IC-2GAT handheld  
TX/RX with BP-70 S/N 08616.  
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Engraved with internal security no — T-00510 and engraved also with either RMIT School of Applied Electronics & Communications or RMIT School of Telecommunications. 7 years old in good order.

Contact VK3CMC QTHR.

ar

ar

not to be detected from passing ships, or of the undictive vengeance of Captain Bligh. Although, the possible real reason of my men may have been to permanently station themselves on our newly found paradise-like island, which they had no intention of ever leaving.

Ten years later, my good friend John Adams was the only mutineer left on Pitcairn. The rest, like me, had perished one by one. John Adams was a mere seaman who was almost at the point of illiteracy, but he was a good, humble, and honest man who had been loyal to me for years, always showing that he had a heart of gold for all to see and feel. John Adams showed his good, hidden wisdom as being the first true leader of Pitcairn.

In those early years, where one could have easily lost all morals, principles, or manners, and be simply satisfied just to lead the easy life of eating, sleeping, and bearing children, my men chose to follow a more productive way of life. As united mutineers, they organized a respectable village square that is now known as Adamstown, and is where today, the majority of their population lives.

The men never lost their love for God, for they always looked onto their trusty Church of England Bible for consolation. In those early days when the island schooling was premature, the first island natives were taught from me good Bible. After all, what's an education, if you don't know the words of God? Me men made me proud when I seen me own children learning from that there Bible, I salvaged with me own scorched hands. Even today, that same Bible is on Pitcairn Island. Loved today, as it was loved in its yesteryears. As a reminiscence of those days, the Bible is taken out of its glass showcase, with its two padlocks guarding its safety, and is read twice a year. Yes, those there people make me darn proud!

As time passed, Captain Elliott arrived on the HMS Fly. It was in that year 1838, that Pitcairn Island became English ruled. Although they were governed by the English, my Pitcairners behaved as their own people.

It were these same Pitcairners, that for as much isolation, as they had to bear with, in their one by two mile paradise, and for as young as their homeland was, my people were extremely advanced for their times. Much more advanced in a couple of ways, than such great lands as America, Spain, or the United Kingdom. For one thing, schooling for the first time ever, was mandated. For another, a native island born magistrate would be elected annually by one of their early laws which stated: "By the free vote of every native born on the island, male or female, who shall have attained the age of eight-

een years, or of persons who shall have resided five years on the island." Notice the word "female". Although we are frequently taught in school that Australia was the first place to let women vote, this is not so. Pitcairn Island was the first to allow female suffrage in the world in 1838. Fifty-seven years before Australia, and eighty-one years before America.

Yes mates, me people have always been very promising. They still prove it, day by day. Remember, my friends, my spirit will always live on in the hearts of my people...

When one refers to life as being too tiresome, when work is too great, and stress too unbearable, doesn't one usually dream of a hideaway? An escape from daily chores and responsibilities, where sleep takes over and conquers any thought not relating to relaxation. A place where no person is under pressure. Where congested freeways, polluted air, and busy streets simply do not exist. A haven as we know not, where only friends are your neighbors, and only a seabreeze will refresh your body. A living where solitude and serenity reigns, and only beauty surrounds you. This paradise we often refer to as a tropical island where you are master of your everyday, and rule only it as you wish.

Well, Pitcairn Island 25° — 04'S, by 130° — 06'W is such an island, with just one exception. The islanders work continually, only stopping to rest on their day of Sabbath, Saturday. Life on Pitcairn is indeed very strenuous. Their days are constantly filled with work for their forty-five inhabitants.

Gardening is one of their tasks which takes up much time when the season arrives. The gardening is done on a sunny plateau where later their dark, rich, soil bears them luscious edibles such as sugar cane, papayas, yams, and bread-fruit.

How ironic that Captain Bligh left Portsmouth, England on 23 December 1787 in route for Tahiti, to acquire food. This food would later feed the bondmen of Jamaica. Their quest was to fulfill the King's request of finding breadfruit and nurturing these plants to feed many, for the cost of a few. When Fletcher Christian mutinied against his Captain and sailed back to Tahiti, and later to Pitcairn, the men found themselves with an evergrowing abundance of breadfruit: enough breadfruit for many, many slaves to have been fed from. If only Captain Bligh would have altered his course and destination, to find Pitcairn Island before his crew mutinied, he would have been held in high esteem by his peers, for accomplishing the mighty task of feeding the slaves.

Some of the other jobs that the island-

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# OUR INTRUDER WATCH CO-ORDINATOR

MERVYN EUNSON VK4SO  
GPO Box 1513 BRISBANE 4001

This is the stalwart who does the most to preserve our amateur bands from marauders. The same indispensable fellow whose efforts are strangely shunned by 99% of amateur operators. A peculiar state of affairs!

The vital task falls to an old-timer and avid homebrewer in Gordon Loveday VK4KAL from an unusual location at Rubyvale in Central Queensland. Ten years' previous experience as Divisional Co-ordinator fits him admirably for the position.

Not to be found in your average atlas, Rubyvale is a delightful hamlet devoid of city drawbacks. Right on the Tropic of Capricorn, it's somewhat this side of the famed Black Stump (that's at Blackall and used as the surveyors' marker to align the State's boundaries in 1886). Not exactly a bustling town, it forms along with nearby Sapphire the hub of our gemfields, a few thousand hectares of crystalline aluminium-oxide called corundum (emery to you) the second hardest of all minerals. Coloured varieties of this constitute the gemstones named sapphire, ruby, emerald, amethyst, beryl, topaz, and spinel.

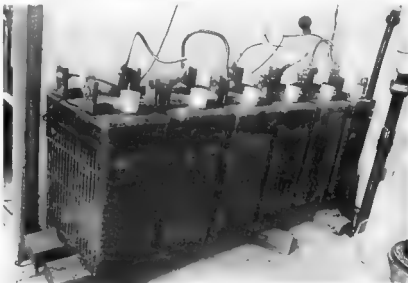
A hundred years of small-claim mining has not dented demand, for due to higher specific-gravity a good sapphire carat-for-carat can be more valuable than diamond. It's also superior to galena as the detector in crystal sets (for the ham who has everything).

Otherwise Rubyvale is pinpointed as being at the junction of two of ten vast Jurassic hydrocarbon deposits, the prime coal-producing Bowen and Galilee Basins. All around is being changed into a deep pit as the ancient vegetation that aeons past grazed dinosaur, diprotodon, ornithomimid and other megafauna — the bunyips of folklore — is stripped for shipment to Japan (to pay for our fancy rigs and electronic gee-gaws).

It's in the dry inland — and dry it is, there's no pub! No butcher or baker. Neither is there a convenient surgery. This is Flying Doctor country, the Beechcraft Kingair "Aof Traeger" making a routine clinic run from Charleville Base VJ.J, 250 nautical miles away (no metrics in aviation). Other amenities and things like photocopyers means a 140 km round trip to "town" (that's Emerald to the east). Tanks collect "aqua pluvius" off the



*Gordon VK4KAL in the cluttered shack*



*Six kilowatt-hours reserve of solar energy* roof for household use, supplemented by mineral-laden water from the underlying table. No, its casing is useless as an earth return, for a sub-strata of dolomite and basalt is notoriously non-conductive.

But it's a superb position for radio activity, unmarred by obstructions or high-rise. Power-line noise is completely absent, the supply for radio/television stemming from solar panels feeding

*Continued page 31*

# JOTA 1989 NORTH SOLOMONS PROVINCE

ERIC SHAW P29KES  
PO Box 265 PANGUNA PNG

The NSP Guides, Senior, Junior and Scouts as well as Brownies again joined forces to create a most interesting weekend at Loloho Beach. My station, P29KES, was operating through a vertical ground plane supported by a beach shower stand an inverted vee strung from a high coconut tree. The climbing abilities of Henry Baraka ensured achievement of a great height for this inverted vee. Paul Weldon, P29PT was operating through a dipole.

Set-up direct at the Loloho beach provided a scenery few other Scouts would be able to enjoy for their JOTA.

JOTA call signs P29GNS (Guides North Solomons) and P29SNS (Scouts North Solomons) were activated as required, when other JOTA stations were contacted.

Operators Eric and Paul were very patient with the Girls and Boys attending. Eric was talking about JOTA 1990 already.

Having missed the official opening, the Chief talking to the Scouts was

warmly welcomed, especially by the two "Woodhouse Scouts" left in the troop.

Contact was established mainly with Australian and PNG Stations:

P29CEH, JOA. VK2AFY, KLQ. VK4AFY, ANR, GGA, KLQ, SAA, SCC, SML.

But the highlight probably was making contact with a Japanese station, prepared to have a long conversation. Koji, the operator, JE2JWE was not a JOTA station, but enjoyed talking to the boys and Annette Emberry (Acting Chief Guides Comm) was able to check her knowledge of Japanese. Paul Weldon gave the Scouts and Guides a Demo, talking to a station in Warsaw, in Morse code, at a "Mind boggling" speed.

Between conversations, the participants were entertained through games, organised by the Brownie leaders, and an Electronics Workshop organised by the one Scout patrol left in the Group, Gume patrol. No doubt the highlight for five of the new Junior Scouts was their investigation — making this day extra special.

One Scout, Nicholas Pion, completed his Special Skills badge, "Electronics", prior to JOTA, by building a Morse key Training board and numerous "little fingers" passed his project, by operating it all afternoon.

Actual conversations over the radio were carried out by:

3	Senior Scouts
9	Scouts
12	Junior Scouts
12	Girl Guides
15	Brownies
7	Leaders
58	Total JOTA badges
1	Special Skills badge "Electronics"

Was JOTA a success? Henry Baraka summed it up in six words "This was the best JOTA ever!"

Many parents attended and assisted with the cooking of a BBQ; and to close JOTA 89 the Scouts had organised a Camp fire (including a "Ghost" to light the fire) songs and sketches. ar

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from page 29

large glass-case 500 Ah stationary cells with thick plates of solid lead (the original Plante design). The Gemfields' expert in such things, Gordon among other pursuits manufactures a superior range of automotive batteries.

Not only excellent for HF operation, the city dweller will be amazed (and envious) at the extent and coverage of VHF and UHF traffic — an enormous area clear to the coast is embraced by four linked FM repeaters (yes, they know that's quite impossible!) engineered by the genius of Richie VK4RRR.

All four 25W repeaters are solar-powered. VK4RRR on 146.925 and 438.5 is near Dyest, VK4RRR (146.975) near Sarina — both serviced by helicopter — with the "local" re-



# Flying Medical visit

peater on 146.950 near Blackwater. The central link site is at Middle Mountain with three remote control 828 MK2 transceivers on reverse frequencies.

Maybe the locals are prescient and preparing for the day when we DX on the bands 70 cm and above. For our HF allocations are congested with unchallenged commercial trespassers. Once it was actually necessary to maintain a watch for stray intruders, today the problem is to avoid the increasing proliferation.

Why doesn't somebody do something about it? Surprise, surprise, that's YOU! Not just the same few faithful fellows who presently send off reports.

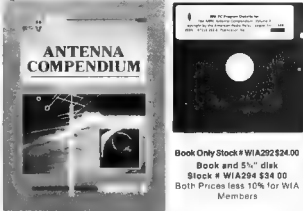
Much, but obviously not enough, has been said on the necessity for all to participate in Intruder Watch. The machinery exists to clear our bands, but won't function unless reports increase many fold to prove our objection. Bureaucracy, with no great brief for our pursuit, calmly takes the view that complacency constitutes acquiescence.

Gordon revels in his peaceful domain and has no wish to retire to a dreadful existence in the hurly-burly of the Coast. His one complaint is that precious few reports are received to assist in his task.

A few thousand intruder logs each month will leave him content.

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Like its predecessor, Volume 2 contains all brand new material, because antennas are a topic of great interest among radio amateurs. ARRL Headquarters continues to receive many more papers on the subject than can possibly be published as articles in the League's journal, QST. So again, as with Volume 1, those papers have been collected here and combined with solicited material. None of this material has appeared in print before. Whether you have only a casual interest in antenna construction or a serious interest in understanding fundamental theory, you'll most likely find something to stimulate your thinking.

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## HOW'S DX

STEPHEN PALL VK2PS  
PO Box 93 DURAL 2158

### Bouvet 3Y5X Last Comments

I indicated in my February column, that if you missed the Norwegian DX operation, you might be fortunate to work the next Bouvet activity which was to start mid-February. I am sorry to say, no such luck. The second expedition, which would have included activity also from South Sandwich Island, has been cancelled due to lack of shipping space. More than one month's diligent search by the would-be expedition could not find an alternative ship, which would have satisfied the requirements. The time originally booked for the first ship expired on the 15th of February, and the expanded timetable could not be fitted-in with the commercial operation of the charterboat company.

It is estimated that approximately 300 VKs and possibly 50 ZLs have worked 3Y5X. According to Japanese sources, the Bouvet group made approx 45000 QSOs. So for all those who missed out — including the writer of this column — there is a long wait, possibly 10 years or more, before the next DX group ventures to the island. QSL for Bouvet to: LA6VM direct with the usual IRCs and self addressed reply envelope.

### Southern Sudan STO/6UO

This is also one spot in Africa which is very much sought after as a DXCC country. John PA3CXC has now announced that, from mid-March, the stations 6U0DX (on SSB) and 6U0CW (on CW) will be active for a period of about two weeks. The tentative list of operators are: Jacky P2CW (who was also in the Bouvet operation), Hans PA3DPT and John PA3CXC. It is rumoured that this expedition is in conjunction with a fund-raising project for Sudanese relief.

However, if you were on the bands on the 8th of January, and you had propagation at 0415 on 14 MHz — which I did not have — you could have worked Eric WZ8C/ST4. Scores of Ws worked him. QSL to: W4FRU.

### Future DXpeditions?

After many years of negotiations, Jim VK9NS hopes to receive an individual entry visa and an amateur licence to go to Bhutan A5. If all is well, he will be transmitting in two months time.

Unconfirmed reports say that, in early March or April, there will be a DXpedition to Aves Island under the callign YV0DX. Aves Island is a separate DXCC country belonging to Venezuela and is situated near Curacao

(PJ) in South America. As propagation is usually good in the direction of the Caribbean, it should not be difficult to work it from VK.

Again he prepared for another DXpedition in October 1990, under the callign HK0TU. This group will go to Malpelo Island — again a separate DXCC country — which belongs to Colombia and is situated hundreds of miles west of the city of Buenaventura.

Richard AH610 (ex T3280) is trying or organise a DXpedition to Palmyra Is. (KH5) and Christmas (T32) for mid March 1990. The proposed activity is designed around the "CQ" contest on 23-24 March.

It is also rumoured that FJ/NOIMH will be active from FJ (St Bartholomew Island in the Caribbean), in the second part of March.

### Commonwealth Games - ZM

Some of the ZL amateurs used the ZM prefix in celebrating the Games in Auckland. "Dusty" was active in the second part of January from Chatham Island signing as ZM7VS. QSL to his home address (ZL2VS): H R Miller 41 Alexandra St Martin 5151 NZ. The official amateur station of the games, operated under the callign ZM14CG from Auckland. QSLs direct to: ZL1ALE A B Johnson, PO Box 397 Papakura 1703 NZ.

### VR200 Pitcairn Island Bicentenary

From the 1st of January this year until the 31st of December, the Pitcairn Islanders will celebrate the 200 anniversary of the Bounty Mutineers landing on the island. The operators on the island (plus one guest operator with 6m gear) will sign with a special prefix VR200 PI/adding their own suffix at the end. Kari VR5KY was active on the 11th January as VR200PI/KY on 1422 at around 0600. A special award can be obtained for one such contact. Refer to "Amateur Radio" December 89 issue, page 43 for details. (See *Pitcairn Is Bicentennial 1790-1990 P26 - Ed*)

### Wallis Island - FW

Worked Mats SM7PKK when he arrived at Wallis Island from Rotuma. Mats was using the call FW/P/SM7PKK and came over with a signal strength of S9. He said "Life on the island is very expensive and if you do not speak French you might have some difficulty". Mats, the "travelling Swede" was active on several bands. He intends to go later to Nauru, Western Samoa and hopefully Tokelau Islands. QSLs to his home address: Mats Persson, Betev 22 S-24010, Dalby, Sweden.

### The Colvins W6QL & W6KG

Iris and Lloyd Colvin are well known DXers from way back. After Niger (5U7QL) and Burkina Faso (XT2KG) they were heard in Bahrain (A92QL) and arrived in Sydney late January. They were active under the calligns VK2GDD and VK2GDE. After a few days of operation they were well on their way to work DXCC from VK. (A minimum total of 100 DXCC countries) QSLs to YASME: PO Box 2026 Castro Valley CA 94546 USA. (See detailed report about the Colvins at the end of these notes.)

### Western Samoa 5W1 and DX QSLing

Received a beautiful QSL card and a long letter from Pete 5W1KT. Here are some interesting comments from his letter: "...Without a beam it is a bit hard for me to work a lot of DX but I have worked about 130 countries in 3 months. There is no local amateur radio activity on these islands. There used to be a ham radio club here and QSL bureau, but neither exist now. No local person holds a licence. The ones who operate, are mostly expatriates, holiday visitors or people in contract jobs, like me. Anyone with a valid ham licence can get a full amateur licence here.

I am amazed by the number of VKs, ZLs, VEs and JAs that QSL direct but do not include return postage. I try to do the right thing by everyone, but it is getting expensive. One IRC costs \$2.00 here and can be exchanged for only 40c. It costs 45c for surface mail. I am keeping some cards until my return to VK, to try to send them via the Bureau..."

I am ending the quotation from Pete's letter. Were you one of the VKs who did not include return postage with your QSL card? Or do you not know how to QSL with a DX station? I am sure that this subject was discussed in this and other similar publications several times, but here are a few basic rules:

a. Unless the DX station categorically states that the QSL is OK via the Bureau, do not assume that your card sent via the Bureau gets an answer. Think: no bureau which is run by voluntary labour is equipped to handle a sudden influx of 20000 or 30000 cards for one DX station, neither time-wise or cost-wise. Not all the DX stations are members of the national associations or bureaus.

b. If the DX station says QSL to his home call, or indicates that it is OK in the callback (meaning the international listings or the USA listings of the "Callback") it means QSL direct to the home call.

c. If there is a QSL Manager indicated, send the card direct to the QSL manager.

d. Enclose with your card a large airmail self-addressed envelope and sufficient return postage. On the average, the return postage should be either 2 IRCs (International Reply

Coupon, obtainable from your post office) or one US \$1.00 bank note. Very often called by its nickname "green stamp". Buy it from your local bank. Be warned: In some countries it is illegal to send any currency in the mail, so find out first whether it is possible and/or legal. IRCs are always a safe bet.

e. If the QSL manager is handling cards for several DX stations, do not send more than one card per return envelope. If you still want to send more than one card to the same manager, enclose separate self-addressed return envelopes for each card, and also enclose adequate return postage for all the envelopes, otherwise the reply to you will be very much delayed.

f. Never show the addressee's call sign or your own call sign on any of the envelopes. Never use the description "amateur radio station" or similar wordings.

g. If possible, use a typewriter to address all the envelopes. The more "non amateur" appearance of the envelopes, the less the chance that it will be lost along the postal routes in various countries where the temptation to remove the IRCs or the "green stamp" from an envelope is too great. What do you think happens in such a case to your QSL card? It will be destroyed on the spot by the offending employee!

h. Never use the small size airmail envelopes, use the larger size, at least 100mm x 230mm. Make it look like a commercial-business envelope from the outside. Do not stuff too many things into it, or if you wish, send it by registered mail (very expensive in VK). If you do not know the surname of the DX station, address it to "Mr O M Jones". The same advice applies to the return address. Some amateurs constantly use the word "Mr & Mrs" on the return envelopes. Use envelopes which have an opaque lining or coloring inside to prevent anyone from seeing the money when the envelope is held up to a light.

## Interesting QSOs And QSL Information

YL1WC Serge 14180 kHz at 1231 UTC. QSL to: PO Box 6, Riga 226037 Latvia.

579SC Simon 14140 kHz at 1900 UTC. QSL to: Box 234, Seychelles, Indian Ocean.

VR5KY Kari Young 14222 kHz at 0639. QSL to: Mrs Kari Young Pitcairn Island SPO via New Zealand.

LU6DG John in Punta Alto Radio Club 14200 kHz at 0724. QSL: via Bureau.

A43XA Khalifa 17th Anniversary of the Royal Oman ARS. QSL to: Box 981 Muscat, Oman. NSGMQ/DU1 Kari in Manila 14202 kHz at 0915. QSL to: DF9RB via the Bureau.

5U7NU Alain 14222 kHz at 0659. QSL to: F6FNU: Antoine Baldeck BP 14 F-91291 Arpajon Cedex France.

T16RLI Dave 14228 kHz at 1231 QSL to: NZAU: Arthur Hubert 436 North Geneva St, Ithaca New York 14850 USA.

FO0IGS Garry 14217 kHz at 0924. QSL to: French DX Foundation PO Box 88, Brux, France.

JW6WDA Arvid 14195 kHz at 0942. QSL to: LA5NM: M.Bjerrang Box 210 N-9401 Harstad Norway.

3D2WZ Ray 21 MHz - CW - at 0430. QSL to: G3WZ.

HS0E John 21 MHz - CW - at 0300. QSL to: K9EL John E Sweeney 707 Venice Ct Schaumburg 11 60193 USA.

TL8CM Harry 14 MHz - CW - 0700. QSL to: DL8CM: Harry Jacob, Pfarrer Theistr D-6805, Friedrichsthal 2 FBG.

JP1DMX/JH18 Hysays 14 MHz - CW - 0600 QSL via ARL Bureau.

VP5P Mike - on Provo Island, - 14 MHz - CW. QSL to: WN5A: Jack T Van Demark Jr 7514 Winter Glen, Houston TX 77072 USA.

ZC4CZ Glen 14 MHz - CW - 0700. QSL to: G4SSH: Clayton, 9 Green Island, Irton, Scarborough N York YO12 4RN England.

Z21CA James 14 MHz - CW - 0500 QSL to: Mr J Smiles 13/23rd Ave, Famaona, Bulawayo, Zimbabwe, Africa.

5Z4FN Don 14 MHz - CW - 0530. QSL to: Don PO Box 45681 Nairobi, Kenya.

N6TRE/HZ 14295 kHz 1948. QSL to: US Embassy PO Box 9041 Riyadh, Saudi Arabia.

9X5NH 14240 kHz 0706. QSL to: DJ6EA Udo Weber Sternengstr 54 D 7406 Dingsheim 5

WU

UI8QU 28495 kHz at 0532. QSL to: K9FD: Mervie D Schweigert, Rt 2, Box 135-A, Red Bud 11 62278 USA.

8P9EM 28520 kHz 1132. QSL to: GSVBL Chris Pedder, 5 Royalty Lane, New Longton Preston, Lancs PR4 4JD, England.

VQ9DX 14190 kHz 1139. QSL to: K7PQS Gary L Storm 786 Samish Island Rd, Bow WA 98232 USA.

LQ2DX 14182 at 0719. QSL to: GADX See notes below.

6W7OG Daniel 14222 kHz. QSL to: F2YT (Paul Joel Herbet, 9 Rue de L. Allouette F-62690 Estree Cauchy, France.

JT2AB Ben - Box 119 Choybalean, Mongolia 14004 - CW -

SV8YM Taseo 14150 kHz 1831 UTC. QSL to: Bureau.

## From Here and There and Everywhere

Larry UT4U0 is QSL Manager for 9N1EN and has all the logs for the year 1986-87-88-89. QSL to: Mr V Hoyko, PO Box 9 KIEV 252200 USSR.

Frank VK2QL says that after 55 years of DX activity he finally managed to have a QSO with 3C0GD a few months ago.

The acceptance of contacts and QSLs regarding Banaba and Conway Reef have been clarified. Previous contacts count, but QSL cards will be accepted only after the 1st March 1990.

In the January issue of "AR" I drew your

attention to the usefulness of the WARC bands, for DX work. Graham VK6RO now advises that those new bands are exciting. He worked 132 countries on 24 MHz since Dec 1982. During 1989 he worked 97 countries on 24 MHz. On the 18 MHz band, he is very close of working 100 countries. (Has anybody else a better record? What about 10 MHz? Send details to me.)

The Lithuanian Amateur Radio Society (LRMD), which functioned in 1938-1940, was reconstituted and the Lithuanian National QSL Bureau is part of LRMD. Any cards to Lithuanian stations (LY, RP, UP) should be sent to LRMD QSL Bureau, PO Box 1000, Vilnius, Lithuania 232001.

Larry T26VV is usually on 21272 or 28472 between 2100-2300 UTC, on 40 metres or 14175 between 0600-0800 UTC, and on 15-12 or 10 metres between 1700-1800 UTC on most days. QSL to: NOBLD Marshall P Rice 5831 SE 53rd Street, Tecumseh, KS 66542. Heard an interesting QSO between VK0CH — Craig — (QSL direct to Box 52 GPO Canberra 3601) and Gery AL7BL. Craig is on Mawson Station in the Antarctic station which still uses huskies for local transport. Wind gusts up to 200 kms. There are 70 people on the station during summer time, but only 24 during the winter. AL7BL, on the other hand, was at the other extreme of the Earth — on the most northern part of Alaska in Prudhoe Bay. He works on the oil-fields in temperatures well below zero. One week on, one week off is his work schedule. He flies home near Anchorage, 1200 km away, each alternative weeks. I had a short contact on cw with 3W3RR on 14009 at 1829. The operator is Roman, UB5JRR. He appeared at the end of January on Percy's "ANZA" net (21205) — HL6BDS left the South Shetland Islands in January. He will be replaced by HL8KJ. Try to work any of the Argentine DX Group (GADX) celebrating stations with a specific LQ prefix. LQ1DX, LQ2DX, LQ3DX — LQ6DX. The celebration (1st anniversary of the group's existence) will last until the 31st of March. QSL to GADX PO Box 38 1834 Temperley — Buenos Aires — Argentina. There is an unconfirmed report that Eric, WZ6C will go to North Yemen, 4W, in March 1990. Do not be too excited about it. We will see. Jorge D2/LU6ELF is back from his vacation and is active again from Angola. His documentation with the DXCC committee is still in progress.

The ARRL DX Advisory Committee has recommended Walvis Bay (ZS9) by overwhelming majority to be accepted as a separate DX country. Final decision will be known next month. T30AC will be absent from Kiribati for a year, whilst studying at the University of South Pacific in Suva Fiji. Bjarn T2BEM, using a vertical antenna was S8 at my QTH on 14185 at 1318 UTC, asking for takers without much success. He just casually mentioned that he has constant hot water in his house, generated from one of the geysers near

Reykjavik. QSL via the Bureau. Due to freak propagation conditions, TR8JLD — Jean Loise appeared on the band — 14222 kHz — at a signal strength of S9 with 10 watts and a dipole antenna 0620 UTC. QSL to AK1E: Dan Morehouse, 618 Leander St, Shelby NC 28150 USA. DL2GAC, Gerhard started a multi-country trip mid-January. Expect to hear from him with the following call signs: 8Q7CQ, VU2BMS, 9M2QR/P, P29VMS, YJOABS and H44/DL2GAC. He will be active on the following frequencies: 14260 — 21260 — 28460 kHz. QSL to: DL2GAC Bernhardt Stefan, Aacht Str 25, D7772, Uhlinden 1 FRG. It appears that XW8CW and XW8DX has been accepted for DXCC purposes.

## Interesting QSLs Received

Direct QSLs: KN0E/KH3 — CM2ED — D44BS — ZK1CQ — F00BEF — ZK1CQ Penrhyn Is ZK1RS — TY88YL — P29KN — OY9JD — EL2WK — 8ZSWK — EL2DK — 6Z2DK — 3D2XK VU7JX — A16AA/MM — 3D2VW — 3D2VT — 5U7QL — TJ1BW — D68CY — ZS1S — VK9TR — VKOMP — VQ9MC — T28RW — FK8FU — VF9AD — VF6JM — VK0CH — KG4DD — 3D6AK — XW8KLP — KH6JB/KH7 — 9Q6XX — 6W1KT. Bureau QSLs: GJ2LU — VX8RA/VX6 — KH0/JA1QGG — CP6IH — OA4BJ — HK1AMW — EA9PY — HK6GLR — KC6MH — HK7AAG

## The Big Question!

By the end of January 1990, more than 20 VK amateurs went to the trouble to send me letters, notes, QSL cards with comments — and others over the air — to encourage me to

stay on the job as the DX Editor of this column. I have thanked you already individually in a circular letter. But I will prepare a summary of your observations, comments, and suggestions for the next issue of "AR". Again, many thanks.

And finally the credits, where credit is due. Many thanks for the assistance received from: VK2QL, VK2DLB, VK4DA, VK4OH, VK5BAS, VK6NE, VK6RO, the Lithuanian QSL Bureau, and the "QEZ DX" Bulletin. Please keep up the information rolling in.

Good DX and 73.

## Stop Press - Late News

XW8CW, XW8DX, XW8KPL, XW8KPV have been accepted by the DX Accreditation Committee of the ARRL as legitimate DXCC operations.

## Latest News - The Colvins In Australia

The world famous husband wife DX-team, Lloyd Colvin W6KG and Iris Colvin W6GL have spent a few weeks in Sydney and became operational after arrival under the call signs: VK2ODE and VK2GDD.

The Colvins are well known around the world as the "super DX-ers" of the DX-era. Since 1985 they are spending at least six months each year on DX-peditions in various parts of the world.

As of October 1989 Lloyd and Iris Colvin have worked half of the active amateurs of the world, travelled in 181 countries, made over

1,040,000 QSOs, worked amateurs in 356 DX countries, received and filed alphabetically 570,000 QSL cards, (the largest such collection of QSLs in the world), held more than 140 different call signs, worked DXCC under 100 different calls, earned more than 60 awards, and received more than 400 certificates.

In Sydney the Colvins were hosted by Harry, VK2BJL both with accommodation and station facilities. John VK2DEJ hosted in their honour a barbecue get-together which was attended by several Sydney amateurs, including the President of the VK2 Division, Roger Hanley VK2ZIG and by Stephen VK2PS, the special events liaison officer of the VK2 Division. Bjorn SM7ED and his wife Alva, who were visiting at that time in Sydney, were also present at the barbecue.

On Sunday, the 28th of January 1990, the Colvins and the Swedish guests travelled to the VK2 Division's transmitting site at Dural, to see the transmitting facilities provided by the VK2 Division for its members. During the usual Sunday morning broadcast, the Colvins were interviewed on the air by Stephen, VK2PS. They spoke about their DX activities, in various parts of the world, including the well-known visit a few months ago to the Soviet Union visiting all 18 republics. They also transmitted as DX from the Club stations in the many cities and towns in the Soviet Union.

A seminar was planned by the VK2 Division to take place on the 7th of February. The guest speakers were the Colvins, who spoke about HF DX-ing. We expect to bring you a detailed report about the Colvin's Sunday Broadcast interview, and the HF Seminar in the next issue of Amateur Radio.

## VHF/UHF AN EXPANDING WORLD

ERIC JAMIESON VK5LP  
8 WEST TERRACE MENINGIE 5264

All times are Universal Time Co-ordinated indicated as UTC

## Beacons on Six Metres

Freq.	Call Sign	Location	Grid Square
50.000	GB3BUX	England	1073
50.005	H44HIR	Honiarua	Q100
50.005	HL9TG	Korea	
50.005	ZS2SX	South Africa	KF25
50.011	JA2IOY	Japan	PM84
50.015	SZ2DH	Greece	KM18
50.017	JA6ZIH	Japan	PM51
50.020	GB3SIX	England	1073
50.020	CX1CCC	Uruguay	
50.025	6Y5RC	Jamaica	FK17
50.025	OH1VR	Finland	KP12
50.028	JA7ZMA	Japan	QM07
50.029	CT0WVW	Portugal	IN61
50.032	ZD8VHF	Ascension Is	IJ22
50.032	ZS2SX	South Africa	KG50

50.035	ZB2VHF	Gibraltar	IM76
50.035	ZS3VHF	South Africa	JG87
50.039	FY7THF	French Guyana	GJ35
50.045	OX3VHF	Greenland	GP60
50.048	TC4BPK	Costa Rica	
50.050	GB3NHQ	England	I081
50.050	ZS6DN	South Africa	KG44
50.056	VK8VF	Darwin	PH57
50.057	TP3SIX	Iceland	HP94
50.062	FY2AA	Brazil	GG68
50.064	WD7Z	Arizona	EL69
50.065	GJ4HLJ	England	IN89
50.065	NB30/1	Rhode Is	FN41
50.066	VK6RPR	Perth	OF78
50.063	KH6HI	Hawaii	BL01
50.075	V86SDX	Hong Kong	OL72
50.078	T2NA	Costa Rica	EK70
50.080	KH6JJK	Hawaii	BL11
50.080	HC8SIX	Galapagos Is	E159
50.085	9H1SDX	Malta	JM75
50.086	VP2MO	Montserrat	FK36
50.088	VEISIX	Canada	FN65

50.090	KJ6BZ	Johnston Is	AK56
50.092	W5GTP	Louisiana USA	EM40
50.099	KP4EKG	Puerto Rico	FK68
50.100	HC2FG	Ecuador	F107
50.100	5H1HK	Tanzania	
50.100	KG6DX	Guam	QK23
50.110	A81XL	United Arab Emir	LL74
50.120	457EA	Sri Lanka	MD97
50.321	ZS5SIX	South Africa	KG50
50.490	JG12GW	Tokyo	PM95
50.499	5B4CY	Cyprus	KM54
52.100	ZK2SIX	Niue	AH50
52.200	VK6VF	Darwin	PH57
52.310	ZL3MHF	Christchurch	RE66
52.320	VK6RT	Wickham	OG89
52.325	VK2RHT	Newcastle	QF57
52.330	VK3RGG	Geelong	QF21
52.345	VK4ABT	Longreach	QG26
52.370	VK7RS	Hobart	QE37
52.420	VK2RSY	Sydney	QF56
52.425	VK2RBY	Gunnedah	QF59
52.435	VK3RMV	Hamilton	QF12
52.440	VK4TL	Townsville	QH30
52.445	VK4RIK	Cairns	QH23
52.440	VK5VF	Mount Lofty	PF95
52.460	VK6RPH	Perth	OF78
52.465	VK6RTW	Albany	OF84

52.470 VKTRNT	Launceston	QE38
52.485 VKGRAS	Alice Springs	PG66
52.510 ZL2MHP	Moutn Climie	RE78

1. This is an addition to the beacon list. Peter, VK8ZLX in Alice Springs, said HLSTG would be operating using MCW while H44HHR on the same frequency uses FSK, so there should be no problems with identification.

Readers' attention is drawn to a statement under WIA News on page 4 of January 1990 AR regarding beacons in the 50 MHz segment of six metres. Executive resolved that there be no beacons in this segment for those States with restrictions, ie VK1, 2, 3, 4 and 7. Executive agreed to a beacon in VK3 on 50.066 and agreement with the already operating beacon in Perth on 50.066. Any future beacons will be on a time sharing basis using either of the above two frequencies.

This arrangement should appease those people afraid of the implications of QRM involved with the establishment of any further beacons in the segment 50.060 to 50.200.

The eastern States of Australia should be adequately served by the two major Channel 0 TV stations in VK2 and VK4 acting as high powered "beacons". There is a proven track record of TV stations being indicators of band openings through the reception of Asian stations on 49.750 and European stations around 48.240 MHz. Their high power often indicates well in advance that an amateur band opening is possible, and no doubt more use of this facility will be made in the future.

## Six Metres

With my problems making a slow recovery I have been able to spend a little time at the operating desk during the past month. Observations were that, unfortunately, there appeared little interest in the Rose Hull Memorial Contest, as few numbers were noted being exchanged. This may have been aggravated to some extent by the absence of Es on many days.

At the end of the month the VHF/UHF Field Day appeared to receive greater support, with a number of portable stations operating in South Australia and Victoria. For some of the time conditions were reasonable on 50, 144 and 432 MHz, allowing contacts between VK5 and VK3 to be established. It is of interest to note the improved signals which can be received from stations operating portable from high terrain. Trying 100 mW on 432 MHz, I had no trouble working VK5ZUCP near Mount Magnificent, about 100 km distant.

While it is probably true to say that Es has not provided a mass of signals at any one time, nevertheless, there have been few days during January when VK4s on 50 MHz have not been heard here at Meningie. There have also been at least seven openings to Japan, mostly around the middle of the day, and VK7s have

also been prominent, some remarking they had worked 14 ZLs. On 10/1 HLSTG, while not strong here, was observed working VK4ZJB, VK4ZAZ and others around 0830.

On 11/1, Mick, VK5ZDR, worked Gary, HLSTG and JAs at 0819. Mick said Gary uses an antenna fixed on the long path to Europe via the USA. Earlier, from 0400, VK4KJL, VK4ZNC, VK4VVM and others were S9 and had been working VK2, 3, 5 and 7. VK2ZGB observed calling JAs at 0411. On 13/1 at 0123, VK4ZDK was S9 and at 0235 VK4KD worked VK3KAY and others. On 14/1, 16/1 and 17/1 there were more JAs, some around 0400. On 20/1 the band seemed to be open to VK7 from 0040 for most of the day and they were working VK2, 3, 4, 5 and 6. At 0330 VK6AOM and VK6YBI were strong. ZLSTPY was heard around 0800.

21/1 was another good day with VK3 and VK7 from 0030, then around to VK6YU at 0104. Pages were heard on 42 and 43 MHz. VK2s and VK4s from 0350. On 25/1 more JAs and VK5OH from Smoky Bay in the west of South Australia to VK5ZDR, also Kerry, ZLSTPY worked by many stations in VK3, 5 and 7.

On 23/1 Ed Roach VK4KAA, from Longreach, phoned to say he had been working JAs and hearing the HLSTG and KH6HI beacons. He runs 60 watts on six metres, monitors 52.525 FM and Ch 50 FM looking for visitors to the town. He runs packet radio on 144.900 with horizontal polarisation and looking south most of the time. He has 70 cm equipment. Lyle VK4KCM is also in Longreach. He confirms the VK4ABP beacon is operational on 52.345 MHz running 14 watts to a quarter wave vertical antenna.

26/1 good signals all day from VK4. At 0728 John VK4ZJB, worked Henri FK5EBM, on his way home from work. Henri was S3 in Meningie. At 0741 from his home station he was worked by VK5LP at 5x5. At 0826 VK5LP worked Kerry ZLSTPY, at 5x5. Kerry was manning a DXpedition from Auckland Island south of the South Island of New Zealand. His signals had fallen to S2 at 0855 but there were no takers for his CQ calls. VK2, 3 and 7 were also available. On 27/1 some good signals observed from VK3 and VK7. JAs at 0200.

On 28/1 Roger VK6NY, reported TV signals were audible for most of the day on 49.750 MHz. Roger also reported that on 24/1 he had been receiving what seemed to be TV signals at 1140 from Germany on 48.239 MHz and Norway at 1152 on 48.246 MHz. Subsequently, these signals were replaced by 49.750 again and he queries whether the 240 kW station at Leningrad was involved, in addition to the 50 kW station at Vladivostok.

29/1, 30/1 and 31/1 provided Es openings to VK2 and VK4.

## New Zealand Operation

It is pleasing to learn that the New Zealand

authorities have granted limited 24 hours use of the segment 50.000 to 50.150 to specific amateurs operating from a fixed location which is not closer than a 50 km radius of the service area of any Channel 1 TV station. As the service area of a TV station is usually considered to be around 120 km this means only those stations outside a radius of 170 km could operate. This will effectively restrict their numbers, particularly as the restrictions also apply to translator stations having a Channel 1 input.

Therefore, it seems likely that the bulk of New Zealand operating will still take place just above 51 MHz as the 170 km radius will probably exclude most of the large populated areas from using the lower segment. Their Channel 1 TV station sound on 50.750 MHz is a useful "beacon" for band openings.

## Six Metres From Hamilton

Steve, VK3OT, has written enclosing an interesting run-down of European stations he has worked since October 1989. Steve is to be congratulated on his perseverance and thus reaping so many rewards. However, he has said the contacts were the result of long hours spent trying to raise the stations and many would not have been made without the use of CW due to language problems. Hence, at times there is still a good case for CW — please note you CW "knockers"!

The contacts open on 9/10/1989 at 0900 with PA3BPM, 0903 PA0HIP also heard by PA3EUI and G6KW. On 11/10/89 a poor QSO at 0932 to G5KW during the good opening to Alice Springs. On 19/10 SSB at 1045 to FC1BUU and at 1046 to FC1JP. On CW at 1050 to P6HWM; 1052 to P6PEE and 1053 to F9DL 30/10: At 1118 SSB to F66HIW; this was a cross-band contact to 10 metres.

23/11: On CW at 0858 to G3W0S; 0900 G3JVL; 0901 G4JCC; 0904 heard W6JKV/CT3 working DUB; 0912 PA0HIP; 0922 PA3ECU; heard at 0927 by G3RFS, an SWL, 0933 PA3BPM. 25/11: CW 0850 OH1ZAA; 0855 SM7BAE cross-band; 0900 G3RFS, SWL.

26/11: CW at 0814 to OH1ZAA; 0815 OH2BR. At 0820 VK3AMZ worked OH2TI, OH2KB and OH1YP. Signals extended into Melbourne with VK3AZY working two and VK3XQ one.

7/12: CW at 0840 to F6LCH; 0844 PA0RDY; 0849 G3RFS, 0854 PA0HIP, 0855 PA4EUI, 0900 G3RFS, all SWLs. 9/12: CW at 0800 OH1YP, 0803 OH2HK; 0804 ZL2BUW. 11/12: SWLs LA9BM, FD1GR and F66HSW report Steve's cross-band contacts.

Steve said the SWL reports were from amateurs, who, for various reasons, did not initiate contacts. The QSO between VK3OT and P6HWM on 29/10 is claimed as a new distance record from VK3 at almost 17,000 kms.

Steve included copies of QSL cards from OH2BR, F1JG, G6KW, G3JVL, PA3EUI,

G4JCC, PA0HIP, G3WOS, F6HWM, PA3BFC, FE6HSW and OH2HK. Also included was a copy of pictures from Chinese television, obtained when using his large M squared six metre antenna system. At other times, he uses a 5 element Channel 0 yagi for receiving video signals between 45 and 50 MHz.

## Pacific Area Contacts

Again from Steve VK3OT: 5/12/89: 0240 KL7CDG; 0255 KL7NO; 0300 AL7C; 0302 NL7OW, 0328 KL7NO on CW, 0329 KL7HBK on CW; 0345 KL7NO SSB at S9 plus. 8/12: 0150 KL7NO 5x3. 9/12: 0150 3D2SO 539; JA8s 0100 to 0200, 10/12: 0200 ZL1AXB on F2 backscatter; HL9TG, VK8RH, VK6ZWM, VK8AH and P29KK.

11/12: 0030 AL7C 539; 0035 KL7IKV 529; JA4s with JA7 on B/S; VK6YU, VK8HK and a CQ to VK6JJ. 12/12: 0113 KL7NO; VK6AKT, VK8AOM, VK8ANR. 14/12: 0300 to 0800 JA7 and JA8. 16/12: YBOARA, XU2A (Vietnam); Alaska Ch. 2 TV on 65.250. 28/12: VK8ZCU, YJ8GP, JA8RC, JA8OMB, H44HIR beacon.

## Lord Howe Island

This is advance information and subject to alterations, but Steve VK3OT will be mounting a DXpedition to Lord Howe Island. Steve said early April in his letter, but later information from Peter VK8ZLX says Steve will be operating as VK9LE from 25/3 to 8/4. On 7/4 Joel N6AMG, will join him and will operate for one or two weeks from the same location. This will present a good opportunity for those requiring LHI for a new country and we hope Steve is rewarded with conditions good enough to provide many contacts. I would imagine the US and Caribbean area stations will be seeking him.

Incidentally, Peter VK8ZLX from Alice Springs will be writing Steve's Six Metre columns for the time being—I wish him well. Peter is currently heading towards working 100 grid squares on six metres, using his 12 metre grid 7 element beam at a height of 15 metres.

## Bolivia

The Japanese "CQ ham radio" magazine (courtesy VK8RO) shows a QSL obtained by JH3LBD from CP8AZ in Bolivia, South America. This is a little-mentioned country with six metre operating. CP8AZ uses an IC502 and a 50 watt amplifier to a 5 element beam at 10 metres.

From the same source; a few QSL routes: FK1TK — Henri Rainer, PO Box 4608, Noumea, New Caledonia; ZK1RS — via ZLADO, Robert J Sutton, Woodhill Forest, RDS, Waimauku, New Zealand; 3D2PO — Andrew C J Woodfield, AWA Ltd, Suva, Fiji; 4F1JZ — via DU1JZ, Evaristo "Sonny" Levisio, 27 New Delhi, BF Homes, Las Pinas, Metro Manila, Philippines.

## Two Metres And Above

Mick VK5ZDR, reports a few very good periods for two metres. One surprising contact was on 10/12/89 with VK7JAD on King Island, which would be somewhat rare. 1990 started off well at 0001 on 1/1 with a good opening to VK3 on 144 and 432 MHz with many stations being worked. The opening extended to 2/1.

On 26/1 an excellent opening to VK3 and VK7 from VK5 on both bands. The good conditions continued the next day to provide opportunities for portable stations in the Field Day Contest to grab some contacts.

## DX Contacts

March and April, and possibly through to May, should be a prime time for long distance contacts via F2 and TEP. The majority of the F2 contacts from the east will probably appear between 2030 and 0000 so early rising will be necessary. JAs are more likely to be prominent around 0100 to 0300. From 0600 to 0800 it will pay to look towards South Africa and from 0800 to 1000 the right time for possible European contacts. After 1000 there remains the possibility of late night contacts to Japan and other northern areas. As you can see, you will find little trouble in spending most of your waking hours in front of the rig looking for those elusive contacts. Traditionally, for a greater range of contacts, our autumn seems to favour the Southern Hemisphere rather than the spring period.

It is good to see that, at least during off-peak periods, most stations move off 50.110 after establishing a contact, and this is a wise thing to do. There are some who continue to blatantly use the call frequency for long QSOs. During peak periods, it is inevitable that some DX stations will continue to operate on 50.110, and this will be the only way you will have your contact. However, providing you are hearing the station at reasonable level, there seems little need for a contact to take

much longer than 30 seconds, at the most one minute, thus allowing waiting stations to have their contact. All that needs to be exchanged are call signs, signal reports and possibly your name — descriptions of your gear, antenna system and the weather are quite unnecessary for important contacts.

For those who say that they must stay on 50.110 for local QSOs because they can hear no other signals, may I quote you an instance during the past week when two VK4s were heard by me chatting on 50.110 after making the statement that the band was dead. On the contrary, I could hear both the VK4s and also Kerry ZLSTPY who was working VK3s. Had I not already worked Kerry I would have been annoyed that my chances would have been spoiled by chat-chat from cross town working by the VK4s.

With so many rigs now having two VFOs, it is so easy to set one VFO on 50.110 whilst you move around with the other VFO. Thus, you can have a local or Es QSO on another frequency and from time to time check the call frequency during such a contact. All it requires is a little thought for others on the band.

## Closure

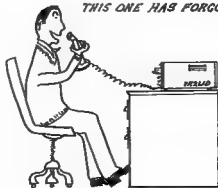
Unless something dramatic happens to upset the hoped-for propagation of the next few months of Cycle 22, six metre amateurs should work many countries. I would appreciate hearing from many of you so that some idea of areas worked can be summarised. You may care to list your efforts in a form which would be suitable for inclusion in the Six Metre Standings Box. Details required are shown in the February issue of AR.

Closing with two thoughts for the month: "The ultimate sin of the mind is the failure to pay enough attention" and "You can tell that a child is growing up when he stops asking where he came from and starts refusing to say where he is going."

73. The Voice by the Lake

as

"I'VE GOTTA GET A NEW RIG, OM—  
THIS ONE HAS FORGOTTEN WHAT DX IS."



VK2COP



# CONTESTS

FEDERAL CONTESTS MANAGER FRANK BEECH VK7BC  
37 NOBELIUS DRIVE LEGANA TASMANIA 7277

## Contest Calendar

### March

- 10 — 11th RSGB Commonwealth contest (rules in January AR)
- 17 — 18th NZART National field day contest
- 17 — 18th WIA JOHN MOYLE MEMORIAL CONTEST (rules February AR)
- 3 — 4th ARRL International DX contest (late news).

### April

- 20 — 21st ARI "ARI international DX contest (rules this issue).

### July

- 14 — 15th IARU HF World Championship (tentative date only).

Associazione Radioamatori Italiani have set a set of rules for the ARI International DX contest for distribution. They have called it a "New" contest, because of the large number of changes that have been made to the rules this year. Whilst on the international theme, the ARRL has sent me a tentative list for the 1990 calendar year. 13 of the contests are either VHF or UHF Sprints or Field day contests, the other 10 are HF only, quite a work load for the contest committee! The contests that will interest our readers are the November CW sweepstakes (3-5th Nov). Sweepstakes Phone (Nov 17-19). This is followed by the 160 contest from Nov 30 till Dec 2nd. The final HF contest of the ARRL year will be the 10 metre contest that is held between Dec 8 and 9th.

The results of the 1989/1990 Rose Hull contest, and 1990 second trial VHF field day contests will be published next month. So far the number of Rose Hull logs received is up on last year, and a few VHF field day logs have already been sighted.

Good luck to you all in the John Moyle contest. PLEASE READ THE RULES, and take care with the cover sheet details. I do not like disqualifying entries. Take care to have ALL operators who man club stations SIGN the cover sheet. In the RD contest of 1989 I had thirteen stations with only the signature of one person on the lot.

## The 1990 ARI International DX Contest

### 1. Aim

It's a world wide competition: everybody can work everybody.

### 2. Date and time

Every third week end of April from 2000z Saturday till 2000z Sunday. In 1990 it will be on April 20/21.

### 3. Classes

#### 1. Single Operator — CW

#### 2. Single Operator — SSB

#### 3. Single Operator — Mixed

#### 4. Multi Operators — Single TX — Mixed

#### 5. SWL — Single Operator — Mixed

### 4. Hours

10m through 160m (except WARC bands) are allowed according to IARU Band Plans. Band can be changed only after using one for at least 10 minutes

### 5. Exchange

Italian stations will send RST plus two letters to identify their province. Other stations will send RST plus a serial number from 001.

### 6. QSO/Points

- a) QSO/HRD with own country counts 0 point but is good for multipliers' credit.
- b) QSO/HRD with own continent counts 1 point.
- c) QSO/HRD with different continent counts 3 points.
- d) QSO/HRD with any Italian (I & ISO) station counts 10 points.

The same station cannot be contacted on the same band once on SSB and once on CW but only the first QSO is good for multipliers' credit.

### 7. Multipliers

- a) all Italian provinces (95) count 1 multiplier
- b) all DXCC countries (except I & ISO) count 1 multiplier

### 8. Final Score

The sum of QSO/points from all bands times the sum of multipliers from all bands.

### 9. SWL

SWL have the same rules as OM. The same station cannot appear more than 3 times on every band as a correspondent.

### 10. Logs and summary sheet

Logs must contain no more than 50 QSOs on each page, separate logs are necessary for each band. Logs must show all the QSOs' data (date, GMT, call sign, complete sent and received exchanges, new multipliers and points).

Duplicate contacts must be enclosed in the log, marked and with points = 0.

A summary sheet is required showing all the scoring details on each band, class of entry, name, call sign, full address of the applicant, call sign of other operators and a signed declaration. A duplicate sheet is required for entries with more than 100 QSOs on one band.

Logs must be mailed within 30 days from the end of the contest and addressed to: ARI Contest, Via Sciallati 31, 20124 MILANO, Italy.

Please enclose your station's description and your comments. A picture will be much appreciated.

### 11. Penalties and disqualification

Disqualification applies for:

- a) excessive number of unmarked duplicates (more than 2%)
- b) excessive declared score (more than 5%)
- c) violation of the "10 minutes rule"
- d) log without the summary sheet

### Penalties

- e) each duplicate contact removed by the Contest Committee means a penalty of 3 QSOs
- f) each multiplier counted twice or more on the same band means a penalty of 2 multipliers

### 12. Awards

Plaque with a certificate will be awarded to the top scoring station in each class. A certificate will be awarded to No. 2, 3, 4, 5 top scoring stations in each class as well as to the top scoring stations in each country in each class.

### 13. Italian certificates

The QSOs done during this contest can substitute the necessary QSL cards for the ARI certificates WAIP, Cdm and IIA.

Enclose an award application, a list of the QSOs good for the award and 10 IRCs for each award.

## Results Of The 1989 Remembrance Day Contest

### QUEENSLAND AGAIN

Logs received (state and section)  
Area HF HF Open HF CW VHF SWL TOTAL

VK1	18	1	2	13	34
VK2	48	8	12	3	64
VK3	21	5	7	8	43
VK4	50	5	9	23	88
VK5	31	5	6	24	68
VK6	32	1	7	48	88
VK7	13	0	3	17	33
VK8	1	0	1	0	2
Over-					
sea	8	0	0		8
Total Entries =	427				
Total valid logs	427				
Points Awarded					
VK1	2307	419	216	877	5149
VK2	5240	1527	1497	82	8326
VK3	2794	916	750	461	4911
VK4	5364	1213	1278	2207	10002
VK5	4761	1019	882	2310	8972
VK6	2677	442	812	5303	9234
VK7	1462	0	234	1531	3227
VK8	70	0	210	0	280
ZL	1153				
P2	53				

The formula for determination of results for each division is:

Number of logs/Number of licensees (Participation) X Total Points X Weighting factor (average of last four weighting factors).

Weighting factor to be applied for 1989 contest is;  
 VK1 — 1.055. VK2 — 7.084. VK3 — 5.582.  
 VK4 — 5.05. VK5 — 1.43. VK6 — 1.615. VK7 — 2.375. VK8 — 10.00.

VK1 — 34/400 x 5149 x 1.055 = 461.736  
 VK2 — 64/5373 x 8326 x 7.084 = 702.550  
 VK3 — 42/5064 x 4911 x 5.582 = 227.359  
 VK4 — 88/3075 x 10002 x 5.05 = 1445.487  
 VK5 — 68/2077 x 8972 x 1.43 = 420.046  
 VK6 — 88/1682 x 9234 x 1.615 = 780.222  
 VK7 — 93/643 x 3227 x 2.375 = 393.337  
 VK8 — 2/205 x 280 x 10.00 = 27.316

The Queensland division is therefore winner of the 1989 Remembrance day contest.

VK4 — 1st  
 VK6 — 2nd  
 VK2 — 3rd  
 VK1 — 4th  
 VK5 — 5th  
 VK7 — 6th  
 VK3 — 7th  
 VK8 — 8th

Certificates will be issued to the winning stations in each section, contestants comments will be published in next month's "AR".

# 1989 Remembrance Day Results - State Scores

HF Phone		
VK1PJ P Rayner	711	1st
VK1RJ Ron Johns	574	2nd
VK1BR	189	
VK1RH	156	
VK1BAT	152	
VK1LF	121	
VK1TD	180	3rd
VK1DW	100	
VK1DF	78	
VK1AK	60	
VK1MX	43	
VK1IF	84	
VK1ZL	29	
VK1AOP	19	
VK1BBA	17	
VK1PC	18	
VK1BEB	14	
VK1SB	14	

VK2DVU Ross Platt	445	1st
VK2DCL Bathurst ARC	436	2nd
VK2ANO	390	3rd
VK2BTP/P Aviat NSW RC	378	
VK2ZL Westlakes ARC	334	
VK2AYK	308	
VK2NW	280	
VK2CHF	200	
VK2PS	197	
VK2CKW	190	
VK2RE	187	
VK2BUI	151	
VK2WI WIA	144	
VK2KSC	116	
VK2LEE	106	
VK2SA	104	
VK2PUP	73	
VK2GV	73	
VK2EXA	70	
VK2IV	68	

VK2ETK	67
VK2XT	64
VK2BVH	62
VK2PN	62
VK2SRM	60
VK2BHS	57
VK2BQS	56
VK2CZZ	56
VK2PD	55
VK2VR	54
VK2RX	50
VK2PY	50
VK2DDW	50
VK2EGI	35
VK2EMU	30
VK2AWT	30
VK2GJS	29
VK2AL	26
VK2ADR	25
VK2OH	22
VK2UM	20
VK2BDT	19
VK2BTZ	12
VK2PJT Log format.	0.

VK3YH S Jenkinson	517
VK3ZI Kevin White	320
VK3DMN	272
VK3CRA	210
VK3ADW	197
VK3DNC	192
VK3CDH	153
VK3ABP	121
VK3AVB	114
VK3QP	114
VK3DKT	102
VK3KTO	76
VK3DVT	74
VK3MBU	68
VK3AOE	60
VK3AMW	50
VK3CVH	41\
VK3CLS	31
VK3ALD	31
VK3ATJ	29
VK3AL	14

VK4YB Roger Crofts	536
VK4BTB Disabled ARC	336
VK4BB	308
VK4BAY	302
VK4AEV	268
VK4DO	250
VK4WIZ Red Am Group	201
VK4BTW	189
VK4KEL	184
VK4IS	179
VK4AGL	176
VK4ASF	160
VK4CEM	159
VK4YZ	159
VK4AEM	139
VK4ACW	123
VK4BSH	109
VK4PS	105
VK4BRG	102
VK4AQD	81
VK4KWD	76
VK4WEM	72
VK4OY	72
VK4AVR	70
VK4SJP	68
VK4BNL	63
VK4KIT	62
VK4AIX	51

VK4IZ	50
VK4AAK	50
VK4NFE	50
VK4PJ	44
VK4ALM	44
VK4BIF	41
VK4WIG Gold Coast ARS	38
VK4KGE	36
VK4NDK	36
VK4AOR	34
VK4AVC	31
VK4MWZ	25
VK4FX	25
VK4BG	22
VK4CHS	20
VK4EV	19
VK4ADY	16
VK4XZ	15
VK4VAW	14
VK4TY	12
VK3DS/4	16

VK5ADD Don Macdonald	616	1st
VK5AYD Don Young	584	2nd
VK5BI	498	
VK5ARN Naracorte ARC	486	
VK5APJ	419	
VK5XY	404	
VK5BMT	289	
VK5GN/P	213	
VK5LL	152	
VK5PC	108	
VK5ATN	104	
VK5RV	87	
VK5UE	85	
VK5BWA	82	
VK5OV	76	
VK5BVJ	67	
VK5KCX	57	
VK5OR	56	
VK5AIM	53	
VK5AQ	47	
VK5ANW	43	
VK5IT	38	
VK5RK	35	
VK5TW	35	
VK5YX	26	
VK5MX	25	
VK5KJT	20	
VK5NVW	15	
VK5LC	14	
VK5KH	12	
VK5DH	10	
VK5NEI Rule 1	43	

VK6GS Gary Smith	300	1st
VK6ATZ T Zarembo	276	2nd
VK6LD	282	
VK6NHX	246	
VK6SZ Kalgoorlie Scouts	221	
VK6RG	205	
VK6AMB	155	
VK6TO	90	
VK6AP	84	
VK6JP	84	
VK6RU	76	
VK6FC/P	62	
VK6SH	62	
VK6KWN	62	
VK6CR	60	
VK6YF	57	
VK6KH	48	
VK6GCD	43	
VK6QB	34	

VK6DJL	32		VK6ST	98		VK1RH	36	
VK6AO	32		VK6WO	61		VK1WI Club	33	
VK6HQ	26		VK6ED E Davies	442	1st	VK1ZQR	30	
VK6HT	22					VK1LF	26	
VK6NRN	19		<b>HF CW Section</b>			VK1BAT	18	
VK6KE	18		VK1DD S Wardle	118	1st	VK1PC	12	
VK6KY	16		VK1CC R Cook	98	2nd	VK1GD	11	
VK6ABR	16		VK2TR R Taylor	232	1st	VK1PJ	19	
VK6SRZ	16		VK2AQF E Carruthers	196	2nd			
VK6AD	15		VK2DQP	186		VK2BDT D Thompson	33	1st
VK6WZ	15		VK2BHO	176		VK2BTZ Goulbourn ARC	19	2nd
VK6YJ	12		VK2CX	154		VK2XLJ	10	
VK6WU	11		VK3GT	140		VK3EHF R Killeen	188	1st
			VK2AZR	140		VK3AVV M Subocz	62	2nd
VK7KZ R Geeves	506	1st	VK2EL	100		VK3BGS	51	
VK7CK Frank Clarke	216	2nd	VK2II	72		VK3CRA	46	
VK7HW	212	3rd	VK2ED	62		VK3CLS	42	
VK7KC	154		VK2FPA	28		VK3KT	35	
VK7NWR	88		VK2CDG	21		VK3DKT	30	
VK7NGC	59		VK3DWW D Harris	186	1st	VK3XH	17	
VK7BJ	53		VK5XB I Stafford	184	2nd			
VK7NBF	45		VK3KS	112		VK4WIZ Radio Amat Group	229	1st
VK7RM	327		VK3BDH	82		VK4ANN Anne Minter	176	2nd
VK7KDV	27		VK3AMD	76		VK4ZDV	173	
VK7SRB Club	25		VK3DID	62		VK4YPB	182	
VK7FD	21		VK3CFI	38		VK4AHO	143	
VK7DJ	19		VK4XA Russ Colston	344	1st	VK4ZXZ	141	
					Top CW overall	VK4BAW	139	
VK8NCH	70		VK4XW G Harmer	244	2nd	VK4AG	137	
			VK4JH	240		VK4GUY	129	
<b>Overseas Stations:</b>			VK4CAG	188		VK4ZBV	127	
ZL1BVK Alex Learmond	447	1st	VK4GD	64		VK4KAC	126	
ZM2GJ R Pearce	221	2nd	VK4BRZ	60		VK4KZA	121	
ZL2ADN	180		VK4DXD	60		VK4VR	100	
ZL4GB	114		VK4XJ	50		VK4TDK	85	
ZL3TX	75		VK4SF	28		VK4CHS	44	
ZM1IM	63		VK5AGX Vic Noble	206	1st	VK4BNL	36	
P29NJS John Stratton	53	1st	VK5AO M Lane	198	2nd	VK4AVR	30	
ZL1CDP	53		VK5MN	138		VK4RX	28	
VK9, VK0 No entries			VK5KL	130		VK4IY	25	
VK9GGA	No log		VK5TL	56		VK4ZBD	17	
VK6GGN	Rule 7 & 12		VK5JG	54		VK4BB	14	
VK6SAA	Rule 7		VK6HQ John Hawkins	264	1st	VK4CMH	13	
VK6SH	Rule 7		VK6AJ J Jeffrey	198	2nd	VK4EV	10	
VK6GGD	Rule 7		VK6HG	164		VK4GT Rule 5c		
			VK6RF	72				
<b>HF Open Section</b>			VK6WT	48		VK5AKK P Helbig	365	1st
VK1DO C Davies	419	1st	VK6RU	34		VK5ZBK S Ruediger	327	2nd
VK2BO Jim Andrews	500	1st	VK6SM	32		VK5NVF	182	
VK2DM D Macaskill	436	2nd	VK7RY E Nicholls	130	1st	VK5KCX	149	
VK2EJW	292		VK7GB E Burne	60		VK6RV	135	
VK2AIC	159		VK7RK	44		VK5BMT	135	
VK2RJ	88		VK5HA H Anderson	210	1st	VK5PC	110	
VK2HQ	50					VK5OR	110	
VK3ALZ I Berwick	431	1st	<b>HF Receiving Section</b>			VK5OZ	102	
VK3CX J Milway	285	2nd	Ms Norah Bock SA	696	1st	VK5AIM	95	
VK3XF	177		Craig Edwards SA	355	2nd	VK5ANN	91	
VK3XH	28		P Kenyon L30037	238		VK5XY	74	
VK3DFI	15		Lance Noll QLD	260		VK5RR	70	
VK4LT Al Carter	423	1st				VK5MD	62	
VK4WID Darling Downs ARC	316	2nd	<b>VHF Phone Section</b>			VK5NVW	50	
VK4OD	249		VK1TD T Donohoe	141	1st	VK5ZKK	49	
VK4YG	173		VK1ZAR J Roberts	115	2nd	VK5ZHV	39	
VK4RM	82		VK1ACA	114		VK5ZWK	32	
VK5ATU R Moon	429	1st	VK1MX	53		VK5MX	32	
VK5GZ L Collins	289	2nd	VK1DW	50		VK5TC	30	
VK5PP	142		VK1AOP	38		VK5AVQ	21	

VK5DH	19		VK6BW/P	84	VK6RZ	12
VK5KX	16		VK6JMP	82	VK6GGN Rule 7	
VK5GN	15		VK6HU	100	VK6GGD Rule 7	
			VK6ZSE	73	VK6SH Rule 7	
VK6CX B Williams	428	1st	VK6SAN	69	VK6GGA Rule 7	
VK6WIA Club	346	2nd	VK6DC	65	VK6SAA Rule 7	
VK6ZLC	317		VK6ZTJ	60		
VK6JMB	247		VK6XE	60		
VK6ZPP	240		VK6RO	53	VK7ZIF Ian Filby	338
VK6JK	232		VK6AN	51	VK7KDV D Pitt	178
VK6ABR	205		VK6IY	50	VK7ZAJ	154
VK6TO	200		VK6KY	49	VK7NWR	150
VK6YGH	189		VK6AMB	45	VK7EB	119
VK6YF	173		VK6HQ	44	VK7AL	109
VK6RG	172		VK6AP	36	VK7ZJG	79
VK6AD	166		VK6RGG	36	VK7FR	69
VK6XPS	165		VK6ZIC	35	VK7ZJH	55
VK6LZ	162		VK6ZGM	35	VK7ZBW	53
VK6AR	144		VK6EB	34	VK7DJ	52
VK6YL	144		VK6GA	25	VK7JP	40
VK6KWN	137		VK6ALZ	24	VK7KZ	37
VK6ZGT	136		VK6NRN	17	VK7RM	28
VK6ZGN	123		VK6KBL	16	VK7RY	28
VK6JP	104		VK6FC/P	14	VK7NBL	20
VK6SAN	100		VK6YJ	12	VK7HW	22
			VK6NE	12	No entries from VK9, 0, or 8.	ar

## Commonwealth Contest

Following the outstanding success of the Auckland Commonwealth Games, it is to be hoped that some of the enthusiasm shown in both VK and ZL will spill over into the world of Amateur Radio for the Commonwealth Contest on 10/11 March, the rules for which were in January AR.

For the benefit of new licensees, the areas for which bonus points are awarded (maximum of 3 per area) are listed below:

Commonwealth Contest 1990 Call Areas

The following call areas are recognised for the purpose of scoring in the Commonwealth Contest 1990.

A2	Botswana
A3	Kingdom of Tonga
C2	Nauru
C5	Gambia
C6	Bahamas
G, GB, GD, GI, GJ, GM, GU, G	United Kingdom (all one area)
H4	Solomon Is.
J3	Grenada
J6	St. Lucia
J7	Dominica
J8	St. Vincent
P2	Papua New Guinea
S7	Seychelles
T2	Tuvalu
T30	W. Kiribati
T31	C. Kiribati
T32	E. Kiribati
V2	Antigua, Barbuda
V3	Belize
VE1	Brunei
VE1	Maritime Provinces
VE1	Sable Is.
VE1	St. Paul Is.
VE2	Province of Quebec
VE3	Province of Ontario
VE4	Province of Manitoba
VE5	Province of Saskatchewan
VE6	Province of Alberta

VE7	Province of British Columbia
VE8	North West Territories
VK1	Australian Capital Territory
VK3	New South Wales
VK3	Victoria
VE4	Queensland
VK5	South Australia
VK6	Western Australia
VK7	Tasmania
VK8	Northern Territory
VK9L	Lord Howe Is.
VK9M	Melish Reef
VK9N	Norfolk Is.
VK9X	Christmas Is.
VK9Y	Cocos (Keeling) Is.
VK9Z	Willis Is.
VK0	Heard Is.
VK0	Macquarie Is.
VK0	Antarctica
V01	Newfoundland
V02	Labrador
VP2E	Anguilla
VP2K	St. Kitts, Nevis (Kitts)
VP2M	Montserrat
VP2V	British Virgin Is.
VP6	Turks & Caicos
VP8	Falkland Is.
VP8	S. Georgia
VP8	S. Orkneys
VP8	S. Sandwich Is.
VP8	S. Shetland Is.
VP8	Antarctica
VP9	Bermude
VQ0	Chagos
VRS	Pitcairn
VRS	Hong Kong
VY1	Yukon
VU	India
VU	Andaman & Nicobar Is.
VU7	Vamatu
Z2	Zimbabwe
ZB2	Gibraltar
ZC4	Cyprus (UK base)
ZD7	St. Helena
ZD6	Ascension Is.
ZD9	Tristan d. Cunha, Gough Is.
ZF	Cayman Is.
ZK1	Cook Is.
ZK1	Manihiki
ZK2	Nine Is.
ZK3	Tokelau
ZL0	New Zealand
ZL1	New Zealand
ZL3	New Zealand
ZL4	New Zealand
ZL5	Antarctica
ZL7	Chatham Is.
ZL8	Kermadec Is.
ZL9	Auckland & Campbell Is.
ZB8	Mauritius
ZB9	Rodrigues Is.
ZD2	Fiji
ZD8	Swaziland
48	Sri Lanka
5B4	Cyprus
5H	Tanzania
5N	Nigeria
5W	Western Samoa
5X	Uganda
5Z	Kenya
6Y	Jamaica
7P	Lesotho
7Q	Malawi
8P	Barbados
8Q	Maldives
8R	Guysana
9Q	Ghana
9H	Malta
9J	Zambia
9L	Sierra Leone
9M2	W. Malaysia
9M6/9M8	E. Malaysia
9V	Singapore
9Y	Trinidad & Tobago
GB6CC	RSGB HQ station
VK3WIA	WIA HQ station
Various	Other Commonwealth HQ

Since the RSGB notified this year's rules, there have been a couple of additions in the Maritime Provinces of Canada, VY2 and VY3, now used by former VE1s, so watch out for them — they may be eligible as bonus areas.

VK3WIA will be activated as the HQ station for Australia — it is workable by all VKs, including VK3s. GB6CC will be active in the UK and it is hoped that ZL may come up with a ZL6.

Maybe we can get back to the top VK entry of 66 logs submitted in 1984!

John Tutton VK3ZC

ar

# AWARDS

**KEN GOTT VK3AJU FEDERAL AWARDS MANAGER**  
38A LANSDOWNE RD ST KILDA 3183

## Details Of More VK Awards

Last month's AR gave a run-down on the awards issued by the Federal WIA. Below is the first part of a listing of awards believed to be currently on offer from WIA Divisions, and from various zones, clubs, and special interest groups.

For editorial reasons it has been necessary to keep details of these awards very brief. If further data is needed, it is suggested that you write to the addresses given. Please do not direct enquiries to me unless all other avenues fail. I can supply further information on Federal WIA awards and on some popular overseas ones, but not on the myriad awards offered throughout VK-land.

One other area has yet to be covered in this round-up of VK awards, namely the framework of the "10-10" awards and the various separate awards within it. Details will be published in an early issue of AR.

## VK1 Award

VKs contact 20 VK1s for basic award (upgrades available) and DX contact ten. \$3 or 5 IRCs. Net on 3.570 MHz each Sunday following divisional broadcast at 1030 UTC. Further details from Manager, VK1 Award PO Box 600, Canberra 2801.

## VK2 Awards

The VK2 Division launched its first awards in 1988. They include a Worked All NSW Award via contacts with stations in various cities, municipalities and shires, and others covering National Parks, recreation areas, and historical sites.

For further details contact Awards Manager, WIA (NSW Division), PO Box 1066, Paramatta, NSW 2150. Please enclose 2 x 41¢ stamps to cover mailing and production costs.

The following awards are issued by various clubs and groups in VK2.

**Central Coast Award:** Details obtainable from Award Manager, PO Box 238, Gosford NSW 2250. Club net (VK2AFY) on 3.5 MHz band, 1930 UTC, Tuesdays.

**Land of the Beardies Award:** Contact stations in Glen Innes area. \$3 details from Glen Innes and District ARC, PO Box 26, Glen Innes NSW 2370. Net (VK2DOQ) on 3.580 MHz at 8.00 PM local time Sundays.

**Lawrence Hargrave Award:** Locals contact ten members of Illawarra ARS, DX contact five. Alternatively, one contact with club

station VE2AMW. \$2 further information from Award Manager, Illawarra ARS, PO Box 1838, Wollongong NSW 2500. Net (VK2AMW) on 3.562 MHz at 1000 UTC Sundays.

**Fisher's Ghost Award:** Contact stations in Camden area or existing holders of award. \$3 to VK and ZL, \$4 to others. Details from Manager, Fisher's Ghost Award, PO Box 249 Camden, NSW 2570. Net (VK2PFG) on 3.580 MHz 8.00 PM local on Fridays.

**St George Award:** Contact members of St George ARS. \$2. Details from Secretary, St George ARS, PO Box 530, Engadine NSW 2230. Club stations are VK2LE and VK2ALE, but club net controller may use his/her own call sign. Club conducts an 80 m. contest every July, partly as warm-up for August Remembrance Day contest, but also to help amateurs qualify for its award.

## VK3 Awards

**City by the Bay Award:** Contact stations in Geelong area. \$3. Details from Award Manager, Geelong Radio and Electronics Society, PO Box 962, Geelong, Vic 3220. Net (VK3ANR) on 3.56 MHz 1000 UTC on Mondays.

**City of Melbourne Award:** \$3. Details from Award Manager, PO Box 242, Sunabine, Vic 3020. Net (VK3CBS) 28.485 MHz 2230 UTC Sundays.

**Western District Award:** \$2. Details from M A Batt VK3KEX, Manager, PO Rokewood Junction, Vic 3351. \$2. Net (VK3BAML) on 3.610 MHz 1000 UTC Thursdays.

**Gold Rush Award:** Same cost, manager, and net as Western District Award above.

**Southern Cross Award:** \$2 or 5 IRC. Details from Eastern and Mountains District RC, PO Box 87, Mitcham Vic 3132. Net (VK3BNW/VK3SR) on 28.340 MHz 2330 UTC Sundays, and 3.672 MHz 1000 UTC daily.

**Moorabbin Award:** \$5. Contact members of Moorabbin and District Radio Club. Details from Award Manager, PO Box 88, East Bentleigh 3165. Net (VK3APC or VK3CCY) on 3.567 MHz 8pm local.

*Brief details of more VK awards will appear in the next issue of AR.*

## Victory-45 Award

This award is offered by the Krenkel Central Radio Club of the USSR to mark the 45th anniversary of the Allied victory in the Euro-

pean theatre of World War II. It requires QSOs with USSR World War II veterans or with special memorial stations. QSOs must be between 1/1/1990 and 9/5/1990 or during the CQ-M contest on May 12-13. No cards required and the award is free.

This award should be very easy for VK and ZL stations, who only need two QSOs. Space limitations prevent me from giving details on how to identify call signs of veteran and memorial stations and other details, but anybody interested can get them by sending me a SASE.

## Awards Issued Recently

### WAVEKA

1800	Richard Collins	NT6V
1801	Luis P Caamano	HI8LC
1802	O Prosta	UQ2GJN
1803	Paul Pogrebnyak	RB5MF
1804	Anvar Z Mujdinov	U18FM
1805	K W Zulkov	U18ZAC
1806	Sportclub, Tashkent	U18AWX
1807	Serge Grigorev	UA6LMW
1808	Vladimir Dergabov	UA3PDW
1809	Oleg N Vicolov	UA0ABB
1810	V I Fedenko	UA3UHA
1811	Club Station, Kharkov	UB4LWA
1812	Club Station, Dnepropetrovsk	UB4EYJ
1813	Igor Anatolyevich	RB5BE
1814	Wayne M Sutherland	NQ5QE
1815	Paul Meechan	VP2EXX
1816	Michael Klengel	Y78SL
1817	E Buchmann	HB9BEG

### WAVEKA (VEF)

38	Tsunshiro Douichi	JO1HQQ
		(6m.)

### HAVEKA

155	Allajaw Shiral	U78-040-244
156	Serge Pigarev	UA1-113-455
157	Sergio Y Tevenev	UA6-102-164
158	Andy Lomovskoy	UA9-099-770
159	Kenichi Ogawa	JA1-24770

ar

## REPEATERS

- additions
- deletions
- alterations

Have you advised  
the WIA of changes  
needed to the repeater list?

## POUNDING BRASS

GIL GRIFFITH VK3CQ  
7 CHURCH ST BRIGHT 3741

### Publicity, A Good Idea...

#### Morse Seminar

"A Morse seminar was held on 27th May, 1989, at Arnold and Carlton College of Further Education, Nottingham, arranged by the College Amateur Radio Society. Some 60 visitors attended and clearly enjoyed 'having a go' at the various activities, and listening to the main talks by G2CVV on 'The Early Days' and G4FAI on 'The Origins of Morse' plus a shorter talk on 'How to operate a key'.

Of considerable interest was a computer program which displayed the length of one's dits and dahs — to the dismay of many attempting to beat the computer using a pump key. Not many achieved perfect Morse! It is hoped to develop this program in time for next year to provide fingerprinting of an individual's sending.

The speed tests proved popular, though surprisingly no-one wanted the certificates offered! A well experienced gent requested numbers at 50 wpm, and to cheers from the assembled room achieved perfect copy.

Six straight keys, loaned by SMC, took some hammering — especially the gleaming brass one coating over 100 pounds — as did the keys and paddles from Dewbury Electronics, with even their Morse keyboard having its share of interest. It was nice to be able to sit down and try them all relatively undisturbed.

From the 'sign-in' lists it appeared that about a quarter of the visitors were class B licensees, which was most encouraging, and about 12 of them took the mock tests to help them prepare for the real thing.

For a 'first-time' event there were a number of things which were not quite right but I

was much encouraged by the number of folk who sought me out at the end and made very nice comments such as 'The best publicity you could have was today — the word will spread!'

I must thank all the helpers. The event could not have taken place without their much appreciated assistance. One visitor asked where all the Nottingham folk were and was surprised to hear they were all helping!

Visitors completed questionnaires and made a goodly number of suggestions for the next seminar which nearly all said 'had' to take place! I believe we shall be able to provide an even better 'show' next year.

RON WILSON, G4NZU MM 13 P34

### Uses Of American Morse

I had numerous questions about what code to use for certain characters, and where the various codes come from, for instance the abbreviation we all use for 'and' comes from the American Morse ampersand, dit-dididit, but as with other space-letters such as 'o', dit-dit, the space is truncated to avoid forming the discrete letters 'e-s'. Users of the International code, being unused to internal — spaced characters hear it as 'e-s' which is how it is usually written when copying.

CW traffic handlers in the US have long used the American Morse comma (dahdahdah) instead of the much clumsier International Morse (dahdahdidahdah). This character MIM used to be the exclamation mark until it was dropped completely, and now most operators have reverted to the American Morse exclamation mark which is dahdahdahdit.

You might hear operators send OK as dit-

dit dahdah, and they are merely using the American 'o' instead of the longer International one.

The end-of-message signal AR, is actually the American Morse letters FN, which meant 'finish', and the sign-off signal SK is simply the headline 30, which meant half-past the hour, and thus the end of the operator's shift.

If you have any further information on these or any other Morse characters or their history, do please let me know.

73's Gil.

AR

INTERNATIONAL MORSE	AMERICAN MORSE
A $\cdot - \cdot - \cdot$	A $\cdot - \cdot - \cdot$
B $\cdot - \cdot - \cdot - \cdot$	B $\cdot - \cdot - \cdot$
C $\cdot - - - \cdot$	C $\cdot - \cdot - \cdot$
D $\cdot - \cdot - -$	D $\cdot - \cdot - \cdot$
E $\cdot$	E $\cdot$
F $\cdot - \cdot - \cdot - \cdot$	F $\cdot - \cdot - \cdot$
G $\cdot - \cdot - \cdot$	G $\cdot - \cdot - \cdot$
H $\cdot - \cdot - \cdot - \cdot$	H $\cdot - \cdot - \cdot$
I $\cdot - \cdot$	I $\cdot - \cdot$
J $\cdot - \cdot - \cdot$	J $\cdot - \cdot - \cdot$
K $\cdot - \cdot - \cdot$	K $\cdot - \cdot - \cdot$
L $\cdot - \cdot - \cdot$	L $\cdot - \cdot - \cdot$
M $- -$	M $- -$
N $\cdot - -$	N $\cdot - -$
O $- - -$	O $- - -$
P $\cdot - \cdot - \cdot - \cdot$	P $\cdot - \cdot - \cdot$
Q $\cdot - - \cdot$	Q $\cdot - - \cdot$
R $\cdot - \cdot - \cdot$	R $\cdot - \cdot - \cdot$
S $\cdot - - -$	S $\cdot - - -$
T $-$	T $-$
U $\cdot - \cdot$	U $\cdot - \cdot$
V $\cdot - \cdot - \cdot$	V $\cdot - \cdot - \cdot$
W $\cdot - - \cdot$	W $\cdot - - \cdot$
X $\cdot - \cdot - \cdot$	X $\cdot - \cdot - \cdot$
Y $\cdot - \cdot - \cdot$	Y $\cdot - \cdot - \cdot$
Z $\cdot - - \cdot$	Z $\cdot - - \cdot$
1 $\cdot - \cdot - \cdot - \cdot$	1 $\cdot - \cdot - \cdot$
2 $\cdot - \cdot - \cdot - \cdot$	2 $\cdot - \cdot - \cdot$
3 $\cdot - \cdot - \cdot - \cdot$	3 $\cdot - \cdot - \cdot$
4 $\cdot - \cdot - \cdot - \cdot$	4 $\cdot - \cdot - \cdot$
5 $\cdot - \cdot - \cdot$	5 $\cdot - \cdot - \cdot$
6 $\cdot - \cdot - \cdot$	6 $\cdot - \cdot - \cdot$
7 $\cdot - \cdot - \cdot$	7 $\cdot - \cdot - \cdot$
8 $\cdot - \cdot - \cdot$	8 $\cdot - \cdot - \cdot$
9 $\cdot - \cdot - \cdot$	9 $\cdot - \cdot - \cdot$
0 $- - - -$	0 $- - - -$
Period (.) $\cdot - \cdot - \cdot - \cdot$	Period (.) $\cdot - \cdot - \cdot$
Comma (,) $\cdot - \cdot - \cdot - \cdot$	Comma (,) $\cdot - \cdot - \cdot$
Interrogation (?) $\cdot - \cdot - \cdot - \cdot$	Interrogation (?) $\cdot - \cdot - \cdot$
Exclamation (!) $\cdot - \cdot - \cdot - \cdot$	Exclamation (!) $\cdot - \cdot - \cdot$
Hyphen (-) $\cdot - \cdot - \cdot$	Hyphen (-) $\cdot - \cdot - \cdot$
Equal (=) $\cdot - \cdot - \cdot$	Equal (=) $\cdot - \cdot - \cdot$
Greater (>) $\cdot - \cdot - \cdot$	Greater (>) $\cdot - \cdot - \cdot$
Less (<) $\cdot - \cdot - \cdot$	Less (<) $\cdot - \cdot - \cdot$

## RANDOM RADIATORS

RON COOK VK3AFW AND  
RON FISHER VK3OM

### Here We Are Back Again

We hope that you found something of interest in the first edition of Random Radiators that found its way into the January issue. We finished up by saying that we would be back with more aerial ideas. However, this month it's down to the other end of the feeder with a bit of information on antenna tuners.

It seems that amateurs are always looking for the perfect approach to a multi-band antenna. It's the opinion of at least one of the

authors (we don't always agree) that the ideal approach is a dipole centre fed with open wire feeder. Let's look at the two important factors mentioned. First let us consider the dipole. For operation on the 80 to 10 metre bands, a minimum length of about 20 metres will give excellent results on all bands. Who says you need a half wave dipole for 80 metres? For the feeder, an ideal approach is 300 Ohm open wire feeder that is often used as low loss TV feeder in country areas. It's a bit hard to find these days, but well worth finding. Another approach is the 450 Ohm transmitting feeder

available from at least one 'AR' advertiser. This works very well but has one disadvantage. The conductors are copper plated steel and have an annoying habit of breaking off at the antenna end, after a year or so of flexing about in the wind. And the last option is to use 300 Ohm TV feeder. The loading (and the losses) will vary with the weather, but if you can find some of the slotted variety these effects will be minimised.

### Now To The Nitty Gritty

Of course, to make an antenna of this type work an antenna tuner is required, and this is where many amateurs run into trouble. The problem is that an antenna tuner with a balanced output is essential. Most commer-

cial antenna tuners are designed for unbalanced output, that is they are designed to match an unmatched coax line or perhaps feed a long random wire. So this is where the subject of this month's episode comes in.

## Enter the 'Ronymous' 'Z' Match

This is of course is not the first time the Z match has featured in AR. Dean VK6LB described a Z match (AR May '89) Rob VK5RG (AR Sept '84) also extolled its virtue. However during the last few years, a Melbourne amateur (who wishes to remain anonymous) has



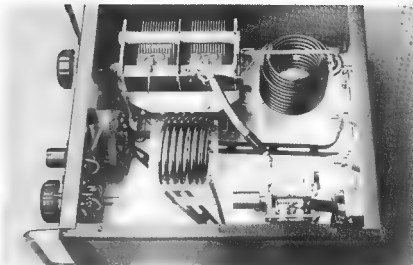
### Method of winding coils

improved and perfected the Z match, and it is with pleasure we present what we consider is the definitive method to construct one yourself.

You will need the following bits which will be available at your next radio club buy-and-sell night for around two dollars the lot. One two-gang broadcast capacitor circa 1950. These were commonly called an "H" gang and must have been produced by the million up to about 1960. One single-gang variable capacitor. A broadcast type is fine but anything with about 250 pF capacitance is quite useable. Several metres of 18 SWG enamelled copper wire, a few scraps of acrylic, polystyrene or similar sheet about 2 or 3mm thick. Also required are a couple of vernier dial drives (H-3900 in the Dick Smith catalogue) and a suitable box (not entirely essential) into which the whole thing may be mounted. Our Z match



Coils assembled on two-gang capacitor



Layout of the Z match in its box

has a big advantage over most of the others — size. The coils to be described are much smaller, so you can get things into a box that is more appropriate for a modern transceiver.

## How To Do It

First of all, have a good look at the photos and the diagram.

L1 is 7 turns when finished. Using 142cm of wire, wind 8 turns onto a 34mm former. When threaded into the holes spaced at 40mm on the smaller plate, this will become 7 turns.

L2 is 6 turns when finished (using 102cm of wire). Wind 7 turns onto a 42mm former. When threaded into the holes spaced at 50mm on the smaller plate, this will give a final result of 6 turns.

L3 is 10 turns when finished using 142cm of wire. Wind on 11 turns to the 84mm former.

L4 is 7 turns when finished. use 117cm of wire and wind 8 turns on to a 40mm former.

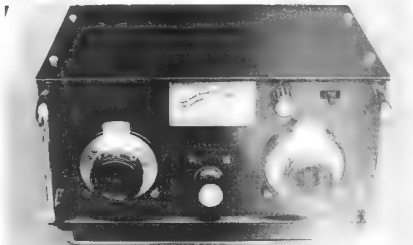
Now a few pointers for the construction of the Z match:

Firstly, layout is very important. The inductors L1/L2 and L3/L4 should be orientated so as to be at right angles to each other. See photo.

They should be located to facilitate short direct connections to both capacitors and the antenna input leads.

The layout shown in the photos has been proven and is recommended. It is very desirable to use vernier calibrated tuning controls on both capacitors.

Rob Gurr VK5RG in his article pointed out



The finished Z match in its box (The meter and switch belong to a power SWR meter not described.)

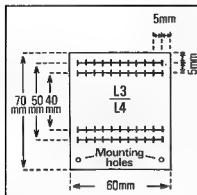


Figure 1

that many authors had recommended labeling of the links as 3.5/7MHz or 14/21/28MHz. This has caused difficulty for some constructors, as some feed line lengths may be better matched by connecting to the opposite output. This problem is solved by fitting a 2 position switch to enable the antennas to be switched as required from L2 to L4.

## The Last Word On Winding The Coils

These smaller-than-usual coils are wound on acrylic plates measuring 60 by 70mm for L3/L4 and 45 by 70mm for L1/L2. As mentioned earlier, the plastic stock should be about 3mm thick.

These plates should be drilled in accordance with the diagrams figs 1 and 2. These plates can be mounted directly to the frame of the two-gang capacitor as shown in the photo-

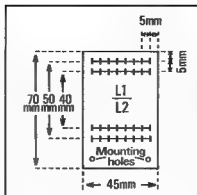


Figure 2

graph. This allows for short direct leads.

The coils can be wound with either enamelled or tinned copper wire of about 16 or 18 gauge. It should be mentioned that the Z match as described will easily handle 100 watts of RF, and in fact, under matched conditions will take close to 200 watts. Of course always tune up using low power (around 25 watts maximum).

A final construction point; the holes in the acrylic plates into which the wire is to be spirally wound should be .2mm larger than the diameter of the wire used. Fractional sized metric drills are available from professional tool suppliers.

The input capacitor "C1" needs to have a maximum capacity of about 300 pF. Again, a normal single gang broadcast capacitor is ideal but the spacing need not be as wide as "C2" as the voltage across it is fairly low.

As can be seen from the circuit, "C1" needs

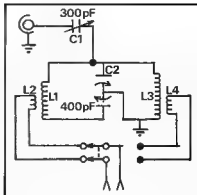


Figure 3

to be insulated from the chassis and this was achieved by mounting the capacitor on an acrylic block of suitable size and then bolting this slightly above the chassis on short spacers. The shaft will also need insulating from the slow motion drive and an extension made from a 6.5 mm plastic knitting needle is ideal.

As a final point, the Z match is by no means confined to balanced feeders. While away with Ken Ed recently on his Lake Eyre expedition, the Z match was used to load up a variety of wires of indeterminate length, with excellent results.

So there it is. Build one up and join the happy Z match users group (no subscription cost). If you feel you might need more details, feel free to call either Ron or Ron when you hear us on the air. We will be back in two months with more antenna ideas, and so for now it's 73 from me and 73 from him — the two Rons.

## AMSAT AUSTRALIA

MAURICE HODDER VK5AEA

11 RICKLAND ROAD NEWTON SA 5074

National Co-ordinator  
Graham Ratcliff VK5AGR

Information Nets  
AMSAT Australia  
Control. VK5AGR

Amateur check in: 0945 UTC Sunday  
Bulletin commences: 1000 UTC  
Primary frequency: 3 685 MHz  
Secondary frequency: 7.064 MHz

AMSAT SW Pacific  
2200 UTC Saturday, 14.282 MHz

Participating stations and listeners are able to obtain basic orbital data including Keplerian elements from the AMSAT Australia net. This information is also included on some WIA Divisional Broadcasts.

## Successful Launch!

HR AMSAT News Service Bulletin 023.01  
From AMSAT HQ Silver Spring, MD  
January 23, 1990 To All Radio Amateurs BT

After nearly three years of hard work by scores of dedicated AMSAT volunteers, there are finally six new amateur satellites in orbit. At 01:35:31 UTC on January 22, 1990, ESA successfully launched its V35 mission, an Ariane 4 booster, from its launch facility in Kourou, French Guiana. On board were six amateur radio satellites, two built by the University of Surrey, UO14 and UO15 and four microsatellites built by AMSAT-NA, AO16, AO17, AO18, AO19. An errant tape recorder on the primary payload, SPOT-2 delayed the launch from January 9th and bad weather in the area brought about a scrub of the launch

on January 21. However, the picture perfect launch occurred at the beginning of the ten minute launch window Sunday evening local time.

## Ancillary Experiments On Webersat

The following article has been condensed from "A Brief User's Manual for Webersat's Ancillary Experiments" prepared by Chris Williams, WA3PSD, Center for AeroSpace Technology, Weber State College, Ogden, Utah 84408-1805.

Once you have configured your receive station for non-DOVE microsat, i.e., UHF RCVR -> PSK modem -> TNC -> Computer (running telecommunications software) you are ready to receive WEBERSAT data. WEBERSAT's downlink frequency is 435.075 MHz for the straight BPSK XMTB and 435.100 MHz for the raised cosine XMTB. The 435.075 MHz frequency is the planned primary transmitter.



## Impact Sensor

Let's talk first about the impact sensor. About one day a week we will be activating software that samples the impact sensor data and transmits it. This transmission will be 7 bit "pure" ASCII and will appear like so:

WEBER-N IMPACT-N>

Impact Counter Data:

01/05/90 01:15:20 UTC 96

01/05/90 01:15:25 UTC 112

01/05/90 01:15:30 UTC 112

etc

with a data line added each 5 seconds.

The above format is simply date (month/day/year), time (hours:minutes:seconds) in UTC and the decimal value of the sensor. The value is interpreted as an 8-bit A/D measurement of a voltage accumulated by the sensor circuitry. Let me explain that. The piezoelectric sensor on the side of the spacecraft (it measures 6" X 1.25") pulses a voltage to the sensor circuitry when a microparticle impact occurs. The circuitry is designed to accumulate up to 16 impacts before it rolls over, ie, cycles back to zero to then continue counting. This impact count is transmitted as a value between 0 and 255 (consistent with 8-bit A/D) with the increment being approximately 16 per impact. In the numbers presented above the first sample line represents a 6 (6 X 16 = 96) impacts since the last roll over. The next line, 5 seconds later, shows 7 impacts (7 X 16 = 112) — which means one occurred in that 5 second period. Please note that the format above has not been designed to squeeze transmit time down to a bare minimum. We chose not to enter any sort of efficiency contest in this regard. We preferred maximum intelligibility as the data appeared on the screen. This is true of the data format chosen for all of our ancillary experiments. Contrary to some published reports, there is no measurement attempted of impact magnitude. The strength of the piezoelectric pulse is not recorded. However, there is some information possible from which someone clever might be able to deduce something. It derives from the sensor design. Within the spacecraft, there is a second piezoelectric sensor which has been mounted on a structural spar of the top module at right angles to the external sensor. This feeds the circuitry in such a manner as to inhibit the impact count being incremented when both sensors pulse. When the entire structure flexes due to thermal effects, both sensors theoretically will pulse and without this inhibition, a count would have erroneously been recorded. The same feature should also inhibit counts of hard impacts that flex the structure. At a magnitude less than this, though, there is a behaviour we have observed which may prove interesting. When the external sensor is hit, the structure "rings". This manifests itself as an impact count increment of numbers greater than one. I have personally seen increments of as much as 8

take place from what I'll call a single medium-hard finger tap on the sensor. When hit harder, the internal sensor triggers and count inhibition takes place. Please do not ask for a more quantitative description that "medium-hard finger tap". It doesn't exist. When combined with variable sample periods, this behaviour may yield some interesting data. A large impact count accumulated over a relatively long period of time says nothing specific about the increment cause. If, however, a large count is present after a fractional second's sample accumulation time, then a "medium-hard finger tap" probably just took place. Should an observer notice an orbital position/geometry dependence of such events, things become that much more interesting. Please understand that we are talking about micro impacts here. Obviously, any object larger than microscopic specks would damage solar panels or destroy the spacecraft in an impact. So, it should now be clear that a tremendous amount of experimental potential exists in this feature of the spacecraft. Physics and Science classes worldwide should be able to do many interesting things with it and the group here at CAST would be delighted to work with any educational institution that would like some particular experiment programmed.

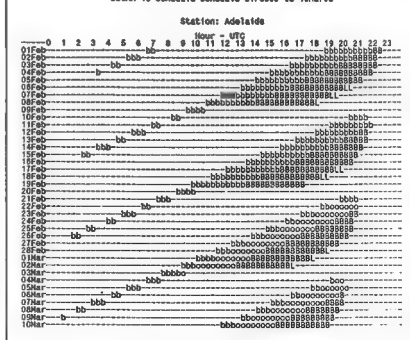
## Horizon Sensor

The horizon intercept sensor aboard WEBERSAT is composed of two visible light sensing photocells aimed through two holes

in a field-of-view defining device. The specs. are as follows:

The conical FOV per photocell is 10 degrees. The two FOVs both point out of the same face of the spacecraft, which is the same face as the camera. They are not pointed at right angles to the face. They are angled towards each other and 11 degrees from the face's perpendicular. Sensor 1 is closest to the outside edge of the face and points slightly inwards towards the centre of the face. Sensor 2 is closest to the camera lens and points slightly outwards towards the outside edge of the face. The FOVs therefore cross a foot or so from the spacecraft, but they do not overlap at infinity. Illumination of a photocell yields a decreased reading of voltage on that A/D channel. The motivation behind the design of this sensor was simply to provide a way to tell when the face of the spacecraft out of which the camera's lens pointed was oriented towards the earth and not towards the sun. The methodology is straightforward. Because the sensor's FOVs do not overlap at distance and point 22 degrees apart, the only object which could equally illuminate both simultaneously is the Earth. The sun subtends too small an angle to be within both FOVs at the same time. At the planned orbital altitude, the Earth subtends over 100 degrees conical. The camera's programming will be arranged to wait for this situation before taking pictures, unless something dramatic at the horizon is desired. It may also turn out that interesting work can be done by math students in analy-

OSCAR-13 Schedule Schedule 01Feb90 to 10Mar90



ing times of illumination and rates of change of illumination of these two sensors to investigate rotation rates of the spacecraft. At this writing, no one has any particularly firm idea of what the specific rotational behaviour of any of the microsatellites will be so some valuable information could evolve from student projects using this data. The two photocells are Siemens products. Their product number is BPW21. For those interested in doing some study of horizon intercept times and the effect of atmospheric versus surface illumination at the horizon, information about sensor spectral response is available from CAST or the manufacturer. The circuit diagram for the amplification network is also available. The data format for downlinked information from this experiment is similar to that of the impact sensor, specifically:

```
WEBER-n: HORIZN-n>
Horizon Sensor Data:
01/30/90 01:30:01 UTC 255 255
01/30/90 01:35:01 UTC 255 255
01/30/90 01:37:12 UTC 255 254
01/30/90 01:37:13 UTC 255 253
etc
```

The date and time are identical to the impact sensor format. The following two numbers are the A/D reading of sensor 1 and sensor 2. Reading left to right, the first number following the time is sensor 1 and the next, sensor 2. The timing of downlinked samples is determined by an on-board algorithm. The samples are taken each second by the software. When the sensors are clearly not illuminated (max value), samples are discarded and not entered in the print (downlink) queue — except for one every five minutes. When a change in value is detected, samples are entered and transmitted yielding data about sensor behaviour at a 1 second resolution. When both sensors' values again climb to darkness, the five minute resolution resumes and data density again becomes low. The exact value of the sensor in darkness is assumed in the above discussion to be 255, i.e., maximum. This may not be true in space. We will check this out and adjust the algorithms accordingly so if you see in the data a constant value of, say, 242 plus or minus noise, then investigation will have shown us that 242 is a reasonable darkness value. Also, noise fluctuations may cause too fine an algorithm to perceive the beginning of illumination so we will be correcting for that as well. Consequently, the example shown above, which suggests the high resolution downlink becomes active when only one bit of change takes place in a stable value, may not prove correct. A change of several bits may be necessary to unambiguously identify the start of illumination. Digital filtering may be employed to explore this behaviour and is yet another area in which students from universities and secondary schools around the world may wish to define/propose experiments for upload to the spacecraft.

## The Gizmo

Let's next examine an experiment that has been called a number of different things. Call it Turbo Download, Quick Video or No Phoneme Digitalizer, the feature employs a D/A converter mounted on the flash digitizer board in the upper module. The way it works is straightforward. The same memory counter circuits which loaded picture memory with digitized NTSC video waveform from the camera can be used to count through that same memory and instead of writing to it, READ from it. The read values from memory are then sent to the D/A which then produces an analog waveform that is, essentially, the original picture. A difference between the original and the new signal, however, is the fact that the clocking for reading the memory will be done much slower than the 10.7 MHz digitization rate. Indeed, clocking and D/A conversion will take place at a rate of only a few kHz. This newly produced waveform then leaves the upper module on a wire within the cable that is the spacecraft intermodule bus. It is fed down the stack and into the communications XMTR. When the proper mode is selected, it is then applied to the oscillator of the XMTR thereby FM modulating the signal downlinking to the ground. The magnitude of the frequency shift of the XMTR carrier is consequently precisely related to the magnitude of the value stored in the memory location currently being clocked out and read. On the ground, a circuit tied into a receiver's discriminator could A/D the frequency shifts received and write the digitized value into a memory area of a PC. Presto, received picture — at a rate potentially much faster than the standard 1200 baud packet downlink. It should also be noted that digitized voice uplinked to the spacecraft by packet, or digitized on board through the 1.2 GHz uplink, could be clocked out to the XMTR in this manner to thereby produce FM voice. Interesting filtering algorithms could then be used to produce sound qualities desired. This is yet another opportunity for students to get involved defining experiments for this spacecraft. There is a caveat of which the reader should be aware. This feature has been tested on the ground in only a limited fashion. Commands to clock out memory values have been programmed into the digitizer board and the output of the D/A has been verified as varying according to the value within memory. Additionally, the XMTR has had its FM line varied in voltage and the carrier's frequency shift measured. However, a complete end-to-end test of the concept with ground hardware measuring ground receiver frequency shifts and all channel bandwidth limitations present has never been done. It might work. We'll see. For those interested in using this experiment, we will investigate performance in the following manner. First, we will prompt the ground users with the following message:

```
WEBER-n: ANALOG-n>
FM TX modulation about to begin. Numbers modulated will be 0, 16, 32, 48, 64, 80, 96,
```

112, ... 255, 0, 16, 32, ... repeating 50 times. Then this message reappears. Each number lasts XXX seconds on the modulation. The test begins in 8 seconds.

And eight seconds later, the downlink XMTR will change its sound from the packet buzz to a rapidly warbling tone. The expected frequency deviation range for values 0 — 255 is about 0 to +3 KHz. We will vary the XXX mentioned above as we explore what is possible with this thing. Once we have confidence in this feature, we will be using it to send pictures and other bank-switched memory data. I can't tell you about data rates or hardware design for the ground because I don't know the answers yet. This is another opportunity for schools to get involved. In this case, the projects would be somewhat more ambitious because not much is known about how this will work in a dopplered, bandwidth-limited environment.

## Magnetic Field Sensors

There are two orthogonal magnetometers aboard WEBERSAT. They have been biased by a small permanent magnet glued (space-rated epoxy) near the sensor to cancel the effects of the powerful attitude control bar magnets at the four longitudinal corners of the spacecraft. These two sensors will fluctuate as the spacecraft rotates within the Earth's magnetic field. The downlink format for this data will be:

```
WEBER-n:MAGNET-n>
Magnetometer Data:
01/15/90 01:30:15 UTC 45 67
01/15/90 01:30:20 UTC 47 82
01/15/90 01:30:25 UTC 49 98
etc
```

Again, the format is similar to the other experiments. The two numbers following the time of day are for Magnetometers 1 and 2 respectively. Magnetometer 1 is oriented to the X-Y plane, lines in the YZ plane of the spacecraft (standard microsat axis definition -> X axis camera lens points out, Z axis receiver antenna (tip) and Magnetometer 2 is measuring flux lines in the XY plane. The numbers have no meaningful units. Their significance will only manifest itself when compared to previous values of the sensor and correlated with an Earth magnetic field map. Fluctuations in the Earth's field and anomalies in its conformance to simple mathematical predictive algorithms have been documented. Measurement of these fluctuations should be possible and the data downlinked from these measurements will be yet another rich source of Earth science projects for students.

## Light Spectrometer

The light spectrometer aboard WEBERSAT is designed to provide data about the spectral content of light entering a slit in the

-Y face of the spacecraft. This light is focused by a lens, reflected from a diffraction grating and the resultant spectrum is shined on a 2K x 1 byte CCD sensor. This sensor then converts its data to an analog waveform for flash conversion by the same circuitry that "takes" pictures with the camera. The sensor is spectrally responsive throughout the visible light wavelengths with some extension of sensitivity beyond both high and low ends of the visible region. The format for this data will be 8 bits, unlike the data formats discussed up to now which will be 7 bit pure ASCII. It will appear like so:

WEBER:n:SPECT0:n>

Spectrometer data follows. The data was taken starting on 01:03:30 at 01:15:35 UTC with 5 seconds between looks and ending on 01:30:30 at 01:15:55 UTC. Looks are separated by text saying "Look nn begins".

Look 01 begins

WEBER:n:SPECT-n>  
 &\* a f a j b k b k o c k e l e m e n e o  
 f o g p g p g o g o g p g o e m c k a . . .

and so on for 5K of data. The gibberish above represents the transmitted stream of

bytes which appear as above because of ASCII equivalence. After every packet, the WEBER:n:SPECT-n> header appears so it will be intermixed with the gibberish. There is an additional bit of information embedded in the data shown above. The first byte after the carriage return after the packet header (WEBER:n:SPECT-n>) is meant to be meaningful. It will position the received packet to follow within a look for those occasions when the satellite emerges over the horizon with a look in the middle of its transmission. Within 5K of look data, only about 20 packets of data fit and therefore that first character's value need be specific only up to 20. The letter S in the word Spectrometer in the text header above has an ASCII value well beyond 20 which identifies it as the first character of the text header rather than spectrum data. The & in the gibberish represents a byte with an ASCII value less than 20 which positions that packet precisely within the look. The text header will appear no less frequently than once every seven looks. When 5K is transmitted, the next look then begins. A look, incidentally, is simply a spectrometer snapshot. The

bytes represent the magnitude of the illumination of each cell of the CCD. Because this illumination results from the different spectrum colours from the grating, we have a measurement of the light characteristics entering the sensor at that point in time. The design philosophy is simply to observe the spectrum of reflected sunlight off the Earth's atmosphere and surface. The different atmosphere components may be measurable from this data at different latitudes and longitudes. As with all the other experiments aboard, we encourage universities and secondary schools throughout the world to contact us so that we may cooperate in defining activities.

This document is a first attempt at getting some worthwhile information to users of this spacecraft. These things evolving as they do, it will most likely be replaced with some sort of rev 1.0 soon after launch as experience teaches us superior techniques. For the time being, however, I can assure the reader that our first efforts at monitoring the sensors will employ the data formats I've specified.

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## SPOTLIGHT ON SWLING

ROBIN L HARWOOD VK7RH

52 CONNAUGHT CRES WEST LAUNCESTON 7250

Just a few weeks ago, I received my copy of the 1990 edition of the World Radio TV Handbook, and I'm pleased to see that the editors and publishers have made the release much earlier, so as to make the most from the current schedules. In days gone by, the WRTVH sometimes did not arrive until March, when most broadcasters altered their frequencies and times to take account of seasonal fluctuations. However, the publishers have also issued supplements during the year, allowing the listener to keep abreast with the latest changes.

This edition is no different, and has all the usual features as in past issues and is easy to use. An addition this year is the inclusion of World Satellite Broadcasts together with frequency information and format eg NTSC PAL or SECAM, whether they are encoded etc. Satellite transponders have, up till now, mainly been PTP and not for general broadcast, but over the past three years, several direct broadcasting satellites (DBS) are now operational. This is particularly the situation within Europe, where the "Astria" satellite carries several channels such as Rupert Murdoch's "Sky Channel". Another British DBS is expected to commence shortly with Robert Maxwell's "BBS Channel", yet many are already questioning the financial viability of DBS, as the cost of hardware has escalated; as these operators are reliant on investment, the public are rather wary of invest-

ing in hardware, when the cost of receiving terrestrial programmes is much cheaper.

Here in Australia, there has been DSB from AUSSAT with the ABC and SBC. The commercial networks mainly use the transponders for linking up studios etc. There is an aboriginal-owned broadcaster in Alice Springs "IMPAAJA" that was (or maybe still is) using AUSSAT to broadcast programming into the remoter regions of this vast nation. I know that originally there were plans for broadcasters to have footprints into specific regions, but I believe that these have largely been abandoned because of the economics.

Nevertheless, the information contained in the current edition re World Satellite Broadcasts is very revealing and informative. Perhaps in the future, we will see this develop as the costs of hardware will drop and DSB come into vogue. The edition has reviews on ICOM's latest R9000 receiver. This goes from 100 kHz to 1999 MHz. It has an inbuilt spectrum analyser and has 1000 multi-function memories. It caters for all modes (except TV) although RTTY, SITOR and Packet require an external terminal.

However, the cost is prohibitive for the average monitor. One AD in the Handbook quoted \$US4996. "Media Network" says that Japanese executives are presented with a R9000 as a retirement present! It also says in the review that ICOM can't keep up with the demand for the R9000. I also note that there

is also a Sony CRF-V21 at around \$US6500 with inbuilt spectrum analysis and fax decoder. It seems that the two Japanese firms are engaged in rivalry in producing similar types of receivers.

Elsewhere, you will probably read about a letter from the IARU Monitoring Service for monitors to conduct a survey of various amateur allocations. They are as follows:

5.006 to 5.060 MHz  
 7.100 to 7.300 MHz  
 10.150 to 10.350 MHz  
 14.350 to 14.400  
 18.168 to 18.318  
 24.740 to 24.890

They are interested in occupancy of these frequencies over a 24 hour period. The period shall commence from 4th March until 24th February 1991. If you are interested in participating, please contact Gordon Loveday VK4KAL, Rubyvale QLD 4702, and he will furnish details to you.

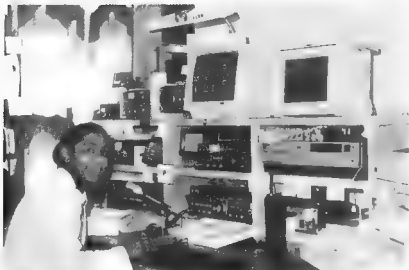
Well, that is all for this month, and until next time the very best of listening and best 73.

ar

**WHEN YOU BUY  
 SOMETHING FROM ONE  
 OF OUR ADVERTISERS,  
 TELL THEM YOU READ  
 ABOUT IT IN THE WIA  
 AMATEUR RADIO  
 MAGAZINE.**

## ALARA

JOY COLLIS VK2EBX  
PO BOX 22 YEOVAL 2868



*Mina De Young (VK8MM) in shack - Alice Springs June 1989. Previous callsigns C2YL, 3D2MM.*

At the time of writing we are all still preoccupied with slip-slop-slepping, and even the mad dogs and Englishmen are trying to avoid the mid-day sun! However, picking up a microphone is not too much of an effort, and it's still nice to talk to a friend, work some DX or whatever our inclination may be.

One lady who has been kept very busy is Joan VK3BJB. When she first started to learn Japanese some years ago via amateur radio, she never realised what it would eventually lead to.

Condensed from the "Sunraysia Daily" 28.11.89.

"Whenever the telephone rings these days in the Mildura home of Mrs Joan Beever, the family never knows what part of the world the call is coming from.

It could be any one of hundreds of contacts the housewife and mother of two has met or spoken to in 20 years as an amateur radio enthusiast.

And chances are the calls will be more frequent in future.

Mrs Beever has recently taken over the job of controller, or key station, of a Japanese amateur radio maritime mobile network, despite her location in a remote section of one of the world's most isolated countries.

Every afternoon she has been checking in amateur radio operators on all kinds of ships and fishing boats going to and from Japan, taking down their positions, weather conditions and their arrival and departure times from the various ports around the world, to

pass on to other net members and to their wives or friends who check into the net, if they can't make direct contact with each other.

If any of the members are busy with their commercial work at net time, they make sure she is kept informed of their ship's whereabouts, either by direct contact or their friends relay information at net time. At the present time, she is checking ships into the network from as far away as the Panama Canal, Ireland and the northern part of the Atlantic Ocean between Europe and the USA...

As the only foreign amateur radio operator to check into the Japanese Maritime net, in June 1988 Mrs Beever became the first ever female net controller in the net's history, and is the only foreign amateur radio operator in the world who has mastered, and uses daily when talking with other friends, the special vocabulary used by all maritime mobile operators to relay their positions, weather conditions, and entry and departure times to and from various ports.

She can also use the special phonetics necessary for the correct pronunciation of foreign port names, which are often totally different to the English spelling and pronunciation.

From the middle of April 1989, she was the only foreign station to support the history-making 137 day voyage, made by the famous Japanese yachting adventurer Kenichi Horie, who crossed the Pacific Ocean between San Francisco USA and Nishinomiya near Osaka Japan in the smallest ever yacht — the 2.8

metre yacht "Mermaid"...

As a support station, she was able to make direct contact with the yachting adventurer himself on many occasions.

Like everyone else concerned, Mrs Beever breathed a sign of relief when the yacht arrived safely in Japan.

During her three years as support station for the Japanese amateur radio yacht network, she has been involved in several air/sea rescues for yachts in trouble, both in Australian waters and waters close to Japan. In April 1989, because of poor conditions between the yacht and Japan, she was the last person to make contact with the Japanese yacht "Meguro", which went "missing" between New Caledonia and Vanuatu in the southern Pacific area on its way from the Solomon Islands to Auckland, New Zealand for the start of the Auckland to Fukuoka, Japan yacht race...

Mrs Beever admits that her poor attempts at the Japanese pronunciation, along with her Australian accent, for some of the difficult European and foreign port names, provides the many listeners to the maritime mobile net with great entertainment.

For many Japanese maritime mobile amateur radio operators on their long voyages, Mrs Beever has become an important link for them in the world outside their normal daily work routine, miles away from anywhere in all types of weather conditions...

Sometimes she has to translate messages received from the various coast stations for friends on fishing boats, if they can't understand any "difficult" English vocabulary. Her service to her maritime mobile radio friends is a way of utilising the language they have taught her, and helps to make their long voyages seem to go much quicker for them."

As Joan says.

"Many people don't realise amateur radio operators can meet interesting people and travel the world without even leaving home."

## YL Contests

EAST MEETS WEST SSB CONTEST.

Sponsored by YLRL.

March 17th 1990. 1800-2200 UTC.

Call "CQ YL East." All HF bands.

Logs must be received by 17th April 1990.

Address:

YLRL Vice President, Dana Tramba, C/o Dandy's, 120, North Washington, Wellington Ks 67152, USA.

DX YL To North American YL Contest. Sponsored by YLRL.

CW Wednesday 11th April 1990 1400 UTC to Friday 13th April 1990 0200 UTC.

Phone. Wednesday 18th April 1990 1400 UTC to Friday 20th April 1990 0200 UTC.

Logs. To above address by 5th May 1990.

THELMA SOUPER MEMORIAL CONTEST 1990: Saturday and Sunday, 7/8th April 1990.

0700-1000 UTC each day.  
All contacts to be on 80 metres, phone and/or CW.  
YLs contact YLs and OMAs. OMAs contact YLs only.

One contact with each station permitted in each half hour period.

Call "CQ WARO Contest". Exchange report, Serial no (commencing with 001) and name. To qualify as a multiplier, WARO stations must have contacts with at least 20 different stations.

Bonus station ZL2YL will count as a multiplier once on each night of the Contest, if worked.

Score: one point for each contact, multiplied by the number of WARO MEMBERS worked, and bonus station if worked.

In recognition of New Zealand's 150th Anniversary, a special condition will apply to scoring this year only:

If contact number 150, 300 or 450 is with ZL2YL it will qualify as an extra multiplier. Each contact claimed as a multiplier to be underlined.

Log requirements: Include your callsign, name and address, number of contacts, number of WARO members worked, score and declaration that all radio regulations have been observed. Logs not complying with these requirements will be disqualified.

AWARDS. Highest scoring WARO member and OM operator will each be awarded a trophy to be held for one year. Certificates to first three WARO members, first three OMAs and highest scoring VK-YL operator.

LOGS: To Contest Manager, Jeanne Gilchrist ZL2BOD, PO Box 661, Hawera, New Zealand: By 7th May 1990.

(From "WARO" Magazine Oct 89.)

While on the subject of contests: Check ALARA Contest logs to see if you have

10 ALARA contacts from 5 VK call areas, or DX 5 from 4 areas, and apply for the ALARA AWARD to: The Awards Manager, Mavis Stafford VK3KS, 16 Byron Street, Box Hill South, Victoria 3128. Fee: 3 Australian dollars (or equivalent) or 7 IRCs.



Jennifer VK3MDR

## Award Update

Nov Date	Recipient	Callsign
182 16.10.89	Sergei S Khvoctov	UB5-0775-529 First USSR.
153 8.12.89	Christine Taylor	VK5KTY.
154 8.12.89	Christine Taylor	VK5CTY 1 Sticker

## ALARAMEET Dubbo 29/30th September 1990

It is now necessary to consider accommodation bookings for Dubbo. Maria VK5BMT has all the necessary information regarding caravan parks, hotels/motels etc, which she will be only too happy to supply to anyone requiring it.

As the ALARAMEET will be held during school holiday time, it is necessary to book well in advance, so please DON'T DELAY.

Address enquiries to:

Maria McLeod VK5BMT, 1 Hawkins Avenue, Flinders Park 5025.

## Souvenirs

Due to the increased cost of further orders and a slow demand, sugar spoons and charms have been removed from the souvenir list, and will no longer be stocked.

## New Members

A warm welcome is extended to:

Allura KAOVWP and Michelle VK5ZYL.

Michelle is new to amateur radio, and is to be congratulated on passing her limited AOCp on the first attempt.

Until next month,  
73/83

or

Have you advised the  
Dotc of your new  
address?

## EDUCATION NOTES

BRENDA M EDMONDS VK3KT  
PO BOX 565 MT WAVERLEY 3149

It has been very pleasing to hear from some divisions that they are moving well along the path to devolvement, and that there is a degree of co-ordination and co-operation developing. I hope this attitude continues and grows still further. It was, however, disappointing to hear recently that the Department has seen fit to terminate the appointment of the Examinations Officer on the grounds that his work is now complete. Keith Carr-Glyn, who held the position, is moving to another Authority.

Keith took on the devolvement confusion at a time when many of us had almost lost interest because of the delays and lack of co-ordination. It is a tribute to his effort, enthusiasm and attitude that he leaves behind a list

of some 70 potential examiners, a vast number of accredited papers, and established procedures for the future. Many of us would have preferred to have him remain in the position at least until the new system was fully functional and the teething troubles were over, but we can only thank him for his past work and wish him well for the future.

I have been assured that the machinery is in place for future accreditation, monitoring of examinations and collection of Pass/Fail statistics. There still remains an urgent need for extension of all the question banks, especially the Regulations, and for a scheme for evaluating individual papers, questions and the system as a whole. As I have said previously, we should be prepared to carry out an

extensive review somewhere about the end of next year. But that time all the major problems should have shown up, and any necessary modifications be apparent.

I would be very pleased to start logging any of these problems, so please forward any comments, ideas or new questions as they occur to you. I would also be pleased to collect feedback from candidates, especially any who have also sat DOTC-run exams.

I would also appreciate being kept informed of the activities of clubs and Divisions with respect to examinations. I will be getting in touch with those on the list of examiners fairly soon to request information about times and venues of exams. Please, if you are preparing papers for accreditation and intend to administer examinations, notify both your own Division and the WIA Executive office of the arrangements, so that we can answer queries about nearest or next exams. We must make it as easy as possible for potential recruits to have access to exams, even if they are not enrolled in course, and we have many

who are not attached to specific groups.

The new system will allow the WIA much better access to candidates than was previously available. This will be a great opportunity to tell candidates of the function and role of the Institute, and the importance of belonging to the oldest Amateur Radio society in the world. Promotional pamphlets which have been prepared by the VK4 Division could be used for this, or if any groups have prepared their own material we would be interested to see copies of it.

I look forward to hearing that the new system is working well. If there is any way I can help, please let me know.

MF

## DIVISIONAL NOTES

### VK2 NOTES

TIM MILLS VK2ZTM

## Annual General Meeting

Members of the NSW Division are advised that the 1989/90 AGM is scheduled for Saturday afternoon on the 26th April 1990. The agenda and reports for this meeting will be sent to Members in April. Annual reports from office bearers must be in the hands of the Secretary by the 2nd March. Notices of Motions and Nominations for Council for the forthcoming year must be delivered to and received at the Registered Office of the NSW Division, 109 Wigram Street, Parramatta NSW by 2pm on Friday 16th March 1990. Nomination forms for intending Council Members together with a leaflet listing the duties of Council may be obtained from the Admin Secretary at the office.

## Divisional Fax

A reminder that the Division has a Fax machine available on its own line 02 633 1525. Clubs and members are starting to use this method for submitting news items for the broadcast. It helps to cut down on the deadline, if you rely on mail delivery. The cut off time is 6pm on Friday. Where practical, submit your item in a ready to use format — typed within A4, double spaced with a 5cm left hand margin. The same applied to posted items. Hand written items have to be retyped in many cases and this adds extra work to the broadcast officer. Keep him happy by reducing his work load.

## WICEN (NSW) Inc

A reminder that the annual Cave Rescue exercise weekend will be held at Bungonia 10 — 11th March. Co-ordinator is Morton VK2DEX. Contact on the Thursday night net

on repeater VK2RWS 7150 at 9pm or a message via the Divisional office. A newsletter was despatched to WICEN members during last month.

## TV Groups' Meeting

The Division, at the request of interested parties, has arranged a forum discussion meeting to be held at Amateur Radio House, 109 Wigram Street, Parramatta. These groups meet with increasing activity in ATV that it is time for guidelines to be formulated to assist all users. The meeting is on the 4th March 1990, at 1pm.

## Daylight Saving Change

A reminder that VK2 changes back on the first Sunday in March and comes out of step with other States for two weeks. The VK2WI broadcasts follow local time 10.45am and 7.15pm. The slow morse session from VK2BWI maintains UTC time and will change on 18th March to the 7.30pm local slot.

The following are recent new members of the VK2 Division and a warm welcome is extended to them.

G F English	VK2JPR	St Ives
J O Farmer	Assoc	Ryde
J W Gill	Assoc	Willoughby
P R Guyer	Assoc	Moree
P J Kerley	Assoc	Abbotsford
S J McDonald	VK2YSM	Sandy Beach
R B Mackie	VK2EJU	Tinonee
A V Pearce	VK2KNK	Wollstonecraft
R F Peirson	Assoc	Chatswood
N C Welsaflg	Assoc	Faulconbridge

MF

### VK3 NOTES

JIM LINTON VK3PC

## Divisional Office

It is just over a year since the WIA Vic Div moved its registered office to Ashburton, and the move has seen considerable improvements in the way the Division functions.

At first there was a settling-in period with the doors closed while painting and carpeting were fixed, and furniture and office supplies obtained. A major task was to computerise office records including all correspondence. Members who visited the office mostly expressed their approval of the new location, and were complimentary of the way it was operating. Those who needed to telephone or write to the office also found they received a prompt, courteous, knowledgeable and helpful response.

Throughout the year a number of non-

members, particularly those who had let their membership lapse, took the opportunity to visit the office and renew their support for the Division by re-joining.

An important role of the office is to be the contact point for those wanting to know more about the hobby of amateur radio, and how to get the licence. We have been able to encourage quite a number to make the effort needed to join the hobby, and directed them to classes or local clubs.

Improvements in the delivery of membership services has occurred as a direct result of the new office. For example, our Book Shop service offering direct or mail order sales in the past year has been extremely popular. The quick service provided has even attracted sales from members of most other WIA divisions.

The Council promised to introduce new services and the first of these gives WIA members high quality coaxial cable, and connectors, at an extremely competitive price. We are currently looking at other possible new membership services. As mentioned in these notes last month the Reference Library is now fully operational. And the office is also an Inwards QSL Bureau distribution point.

## Tax Exemption

The Australian Taxation Office has advised that income earned by the WIA Victorian Division is exempt from income tax. It has always been considered our organisation was exempt from paying income tax since being incorporated in the 1920s and from its foundation nearly 80 years ago. However there was a nagging thought about taxation liability, and no documentation confirming the tax status could be found.

Late in 1988 at the time when it was decided to improve the financial affairs of the Division it became clear a number of corporate matters needed attention. Acting on advice from our solicitors, A B Natoli, the Division's General Secretary/Manager, Barry Wilton VK3XV prepared a detailed submission to the Australian Taxation Office. This process took a year and has concluded with written confirmation from the Tax Office that subject to certain conditions, under section 23 (g) (ii) of the Income Tax Assessment Act 1936 the Division is exempt from income taxation.

## Council Nominations

Nominations for the 1990/91 Victorian Division Council will close on Thursday, March 30, 1990. All nominations should be on a prescribed pro forma available from the Divisional Secretary and posted or delivered to reach the Division office not later than 3.30pm on the above date.

## Balance Sheet The 1990 AGM

The Balance Sheet for 1989 and Auditors Report together with a report from Council will be published as an insert in May edition of AR magazine. Both will be mailed directly to members who have opted to take the non-AR magazine membership subscription. A notice advising of the 1990 Annual General Meeting will be included. It is anticipated the AGM will be held on Wednesday, May 30; however members will be formally advised of the date and venue.

## Moondarra Convention

The Eastern Zone is holding a convention at Moondarra on the weekend of 4-6th May 1990. It will be similar to the very successful convention at Moondarra in 1988, with the emphasis being on a family weekend. Moondarra is situated in scenic country about 20 minutes drive north of Moe.

Accommodation will be available for nearly 100 people at the camp and meals will be available from Saturday breakfast through until Sunday lunch.

A large range of activities is planned so that there will be something for everybody. Some of the activities are fox hunts (junior and senior), CW contest, radio throwing competition (for KYLs), trade displays, white elephant stall, raffle, children's games, and a home brew competition.

Persons wishing to set up a trade display should direct their enquiry to Colin, VK3ELJ on phone 056 299 483 (BH) or 056 23 4926 (AH).

SECRETARY

EASTERN ZONE VIC DIVISION

## VK4 NOTES

BILL HORNER VK4MWZ

## Welcome to 1990

This year will prove to be a very busy one. Extensive communications will have to take place if the Education Development is to be fully successful and run smoothly from the outset.

## New Members

At the January 10 council meeting the following new members were welcomed to our division.

I H Campbell	VK4TK	Brisbane
G K Martin		Biloela
E V Parker	VK4PQT	Yeppoon
G F Featherstone	VK4WF	Brisbane
N Budgen	VK5BNR	Eak

R J Sisber	VK4KN	Birkdale
K McCoaker	VK4CCJ	Toowoomba
J H Bartlett	VK4AUS	Townsville
S Grattidge	VK4MDG	Bray Park
R P F Muller	VK4SRP	Townsville
G W Mackay	VK4CAS	Brisbane
S M Hudson	VK4FEA	Bray Park
N T Mills	VK4KOP	Maroochydore
R F Beets	VK4YV	Minden
G T Malcolm	VK4NAE	Brisbane
P Antuar	VK4NCY	Brisbane
P Olivieri	VK4PO	Brisbane
G McCabe	VK4ANGL	Brisbane
T E J Birch	VK4GC	Brisbane
R E Lees	VK4ER	Brisbane
N V Covey	VK4YNC	Rockhampton
D J Reedman	VK4ADI	Gympie
J A Lee	VK4AJO	Chinchilla
J S Biddle	VK4QC	Warwick
W J Berry	VK4WB	Brisbane
R Yeats	VK4CRY	Childers
L B Zuch	VK4VPZ	Brisbane
R L Thompson	VK4NET	Innes Park
M Dwyer	VK4AFM	Brisbane
D K Saxelby	VK4ADS	Brisbane
A Beon	VK4ABI	Sorrento
D V Redmond	VK4NRH	Mt Isa
A F Wrenbeck	VK4VO	Toowoomba
C B Munchon	VK4TTT	Birkdale
A M McCaskill		Innisfail
G E Hawgood	VK4KE	Brisbane
I Smith	VK4NTP	Yeppoon
A N H Phillips	VK4FVA	Mysterton
P C Uzzell	VK4NAK	Cambooya
J S Strudwick	VK4FPA	Brisbane
H G Cause	VK4VKA	Brisbane
S M Harris	VK4AOZ	Caboollure
A R Hartkopf	VK4VKP	Parkhurst
P Jones	VK4YAC	Brisbane
J Elliott	VK4KIN	Broadway
Bayside Amateur		
Radio Society	VK4BAR	Brisbane
QLD International		
College of Technology	VK4CIO	Brisbane

Welcome one and all.

Good luck to those who are sitting the 1st non-DOTC administered exam. CU next month. ar

## 5/8 WAVE

JENNIFER WARRINGTON VK5ANW

## It Pays To Make Mistakes!

Well, perhaps that isn't quite accurate, but an omission or two on my part in the Jan column has gleaned quite a bit more information. In the article on VK5WI I mentioned Cliff Moule for whom I could find no call sign. No sooner had AR hit the street (so to speak) than Gordon Ragsless, the former VK5GR, rang me to say that Cliff certainly did have a

callsign, VK5CX, which he still held despite being fairly inactive these days. I subsequently rang Cliff to apologise and he has furnished me with some information both on himself and 5WI. (I quote)

"Licence 274 issued to CE Moule with call sign VK5CX on 28.3.30 worked on 7 MHz band 29.4.30 to 31.5.31, and on 1.4 MHz (old 200m) 8.5.32 to 13.8.33 with occasional music (live and recorded) and rebroadcasts of 5DC, 5DX & 5WB (all on 200m band) Changed to 3.5 MHz from 27.8.33 with music still permitted. As in AR (Jan 1990) offer to rebroadcast WIA sessions accepted but logbook only shows 2 sessions, 10.9.33 from 10.15 pm to 10.45 pm direct from VK5CX, and 24.9.33 from 10.30 pm to midnight rebroadcast VK5WB. That was H B Wilson who had VK5JM, Wayville Radio Club at his home, but used his own callsign and the WIA program continued for some months with the session originating on 1.4 MHz and rebroadcast on 3.5 MHz.

Transmissions on 200m were banned about the end of 1933, but I believe 5WI had its own transmitter on 7 MHz soon after and located in a Savings Bank building in Rundle St East (about the eastern end of the present Myer building). This could be the entry for 5.12.34 when a change was made to 80m."

Thanks Cliff for sending the above information, I'm intrigued to know what the "live" music consisted of.

Next month I'll continue with some more information which was sent by Reg Harris VK5RR.

## New Members

The following are new members since June 1989, we trust that your association with the VK5 Div will be a long and happy one. Have you considered nominating for a position on Council? We need some new faces, so please think about it.

## New Members From June

VK5KAQ	Mr BF Vaughan
VK5ZCI	Mr DW Bosanko
VK5ZMM	Mr MJ Mackintosh
VK5VYW	Mr TJ Wilson
VK5BRH	Mr RH Whellum
VK5YC	Mr CA Branch
VK5QB	Mr DJ Tanner
VK5NEH	Mr EG Jennings
VK5ZIP	Mr JG Rowley
Assoc	Mr RG Mayfield
Assoc	Mr P Mudge
Assoc	Mr I Marinkovic
Assoc	Mr L Vette
VK5BEB	Mr MM Telford
VK5KYM	Mr KM Oates
VK5YL	Mrs DA Robertson
	Riverland ARC
Assoc	Mr J Boardman
VK5GAS	Moomba ARC

VK5ARA  
VK5AKM  
VK5NMD  
Asoc  
VK5MD  
VK5KDK  
Asoc  
Asoc  
Asoc  
Asoc  
VK5CM  
VK5ZDR  
Asoc  
VK5BP

Mr F Reiter  
Mr KG Minchin  
Mrs A Dawkins  
Mr BT Armstrong  
Mr W Waldegrave  
Mr CW McEarchern  
Mr MP McRitchie  
Mr EG Hayman  
Mr W Hoskins  
Mr FJ Thysen  
Mr CW Monger  
Mr MJ McMahon  
Mr FJ Koen  
SA Scouts Ass of Aus

## Sins Of Omission!

My humble apologies to Tom Sears VK5NJJ — I forgot to put him on the Christmas card list this year, as a new position, so he didn't get thanked in the usual way, as the rest of our volunteers did. I felt dreadful when I was told what I had done, as Tom has worked very hard this year helping to keep "ESC" moving especially with the mail orders.

Tom will continue to help the new ESC team of Mark VK5ZVQ and David VK5KK — our thanks to all of them for taking on the positions.

for sale, only to find it was on the hot list! It is now with its rightful owner. Make a note of your serial numbers — just in case.

## Wanneroo And Mosts

For those who still think they are safe because they don't live in Wanneroo, consider this: amendment 454, once accepted by Town Planning, can be adopted by other councils. The fight continues.

## Monthly Meeting

When did you last attend a WIA meeting? Many of you are missing some good lectures, which is a pity. The effort of getting along to meetings can be worthwhile — check out the QSL Bureau, perhaps there are some cards for you. How about the bookshop? There are new titles in stock. If you need new or more QSL cards, ask John VK6GU about our printing service — and save. After the meeting or lecture, relax with a cup of tea or coffee and biscuits, and chat to old friends, or make new ones. Make a note on the calendar now, and go along to the West Rail Centre on the 20th of March at 7.30 pm. Parking is free.

## Diary Dates

March 16 — 18 Clubs Convention Ridgehaven Primary School.  
March 27 General Meeting BGB 7.45 pm.  
April 24 Annual General Meeting 7.45pm

Can you identify these VK5 past Presidents? For answers, see Page 66.



President 1



President 2

## VK6 NOTES

JOHN HOWLETT VK6ATA

## Disposals

Roy VK6KV does a good job with the buy and sell department, but did you know he also keeps a list of stolen equipment and the serial numbers? If you are buying second hand equipment, give Roy a ring on 447 7000 and check out the serial number. In a recent episode, a VK6 checked out a piece of equipment

## INTRUDER WATCH

GORDON LOVEDAY VK4KAL FEDERAL INTRUDER WATCH CO-ORDINATOR  
AVIEMORE RUBYVALE 4702

Before I continue our excursion into monitoring — I'm sure all readers will applaud the move by our Region 3 Co-ord, to get a three region move, albeit originating from discussions between co-ords, to target the biggest offenders, for an ALL OUT PUSH to get them bodily removed...I hope the respective Governments react favourably. Now to continue from Feb issue:

(9) J8E Resolution freq of 2 indep sidebands.

(10) PON Centre freq of emission, this applies also to M7B

(11) R3C centre freq of emission (Fax, SSB reduced carrier)

(12) R3E SSB read carrier zero beat of carrier in SSB/CW where carrier can be heard, otherwise at resolution freq of modulation.

(13) RTB Centre of freq of transmission.

Allowances should be made, where applicable for any inbuilt freq offset that results in erroneous dial readings of measured freq. FSK Morse — This method of sending morse code often produces confusion to monitoring stations. It is difficult to receive when listening to both carrier & shifted carrier. To read correctly, simply switch in a narrow filter (if available) and listen to the shifted carrier only.

## DON'T

**BUY STOLEN EQUIPMENT  
- CHECK THE SERIAL NUMBER AGAINST  
THE WIA STOLEN EQUIPMENT  
REGISTER FIRST.**



## SILENT KEYS

We regret to announce the recent passing of:

Mr E H Cox	VK1GU
Mr G R Pearson	VK2BDT
Mr John Zwart	VK2FCZ
Mr G B Isaacs	VK2PZK
Mr Alan Williams	VK2ZAL
Mr W L Stevens	VK4YN
Mr R W Sterrett	VK4BOZ
Mr K Span	VK4NKS
Mr John Edward de Cure	VK5KO
Mr Lance Catford	VK5XL
Mr M H Fuller	VK6AMF
Mr Harry Brown	VK6AP

### Alan Williams VK2ZAL

I wish to advise his friends and fellow amateurs of the recent passing of Alan Arthur Williams VK2ZAL. Alan was 66 years old when he became a silent key on 1st December 1989. He had held this call sign since 1968 and had been very active on VHF during the 1960's.

In association with myself, VK2BDN, his brother-in-law, Alan explored the VHF and microwave regions. As a team we competed successfully in the numerous field days, "fox hunts", scrambles and "treasure hunts" which made the "sixties" so exciting.

Alan is survived by two sons, Alan and Bruce and will be sadly missed by his many friends.

DICK NORMAN VK2BDN

### John Edward de Cure VK3WL — VK5KO

Jack de Cure was born in Adelaide on 16th July 1899 and became a "Silent Key" on the 19th August 1989 in his 91st year. He moved to Melbourne with his family in 1902. In the early 1920s he became a telegraphist with the PMG Dept and at the same time acquired an interest in radio. He obtained his Amateur License in 1929 with the call sign VK3WL.

During this period in Melbourne his sporting activities included competitive cycling. In this field he had considerable success when taking part in interstate road racing championships.

It was due to his experience and interest in radio that he was transferred to the Radio Branch and in 1935 he was posted to the Radio Inspectors Office in Adelaide. Initially for 3 months to assist in getting the office established; eventually the posting became permanent.

Rob (VK5RG) volunteered the following: "I worked with Jack in the post-war period as a cadet radio inspector, he being the Chief RI for SA/NT. He helped me extensively in my

early studies and morse training. He was known and respected throughout the broadcasting and radio communication fields, where his main activities were station measurements. I was pleased to carry his bag on these occasions. Jack was an amateur sought by many overseas stations for their 160 and 80 meter VK contacts during the late 1940 and early 1950 period. His work in this field provided valuable data for the Ionospheric Prediction Service. In retirement, he continued with his only mode, CW. I don't think he ever had a phone contact. The inability to erect an 80 meter end-fed Zepp in a restricted area never daunted Jack — he let the last 35 feet hang vertically from the far mast. Details were published in AR under the heading "Inverted Bathub Antenna".

During late 1939, I together with a group of radio amateurs who were employed in the radio industry, set out to obtain the First Class Commercial Radio Operators Certificate of Proficiency. Jack, then No2 in the Radio Branch, volunteered to coach us. Most were successful and were for ever grateful for the evenings he devoted to helping us. Many others had good reason to be grateful for his help.

Promotion took Jack to Sydney and, finally to the top job in Victoria from where he retired as Superintendent — Radio Branch — in 1960.

To the surviving members of his family we extend our sympathy.

JOHN ALLAN VK5UL

### Lance Catford VK5XL

Lance was born in 1913 in Auburn, the family being farmers in the Mid North. He first built a receiver in 1924, aged 11; an interest that he was to enjoy for the rest of his life. He worked on wheat graders in Victoria (Hannaford) until health problems became evident due to the dust and chemicals used to pickle the wheat.

Lance obtained the call VK5XL in 1939. When war broke out, he was unfit for Active Service, but joined the Railways' essential service operations.

All the Amateur Radio equipment was confiscated of course for the duration of the War. After the War he became active again, using ex RAAF ARS and AT5 equipment from aircraft at Mt Gambier. This gear is still on hand and appears to be operational. Lance used this equipment until SSB signalled the demise of AM, when eventually he proudly purchased a Collins KWM2 transceiver, which he used as the main station transceiver till the end. He had an active involvement in the Mid North Amateur Group, who met occasionally for a picnic and much face to face

communication.

Lance's interest in mechanics (he ran a successful agricultural/engineering business till retirement), and his lifelong interest in radio and electronics had a very strong influence on the lives and careers of his two sons Layton and Adrian. Both have held Amateur licenses. Adrian VK5ZAJ has hopes of obtaining the CW, and would like to pick up the 5XL call which Lance held for 50 years.

Lance passed away December 19th 1989 aged 76 years, and his XYL Vera died 12 weeks prior on the 22nd of September.

ADRIAN CATFORD VK5ZAJ

### John Zwart VK2FCZ

Born on the 26th March 1932 in Holland, he travelled through Occupied Europe through the turbulent years of the Second World War, living for a time with foster parents, not knowing where his parents were or even whether they were alive until after the war. He spent two years in the Dutch Air Force where he attended the Radar and Radio School, and thus gave him the qualifications of a Fine Instrument Maker and Electrical Technician.

John met Eliza, eventually marrying her at the age of 24, one week before sailing for Australia. Upon arriving in Australia he lived in Double Bay, and got a job with Burroughs where he worked for a number of years. He next worked for H G Palmer, gaining knowledge in the Television field. When that company went bust he switched to Eric Anderson, doing the same type of work. By this time he and Eliza had bought a house in Paddington which they set about "renovating".

John fell in love with the Australian bush, as did his whole family. They spent much time going bush and camping, eventually buying a caravan to go bush "in style".

In March 1964 their first son Gerard VK2KEA was born. The family moved to Clovelly, where they still live. Later he shifted jobs again, commencing a career spanning 12 years with General Electric, where he became head of the fleet of Television Service Technicians. His second son Robert was born in April 1968. His sons became involved with Scouting, where the troop often enjoyed the yarns John would spin around the campfire. John took on the job of Group Treasurer for a number of years. The family's involvement with Scouting spanned about 13 years, with Eliza becoming a Cub Leader for a time.

General Electric sold out, so John decided to seek out an alternative career. He worked for four years at Olivetti, but finding no satisfaction there he decided to put his artistic talents to use, taking a job with Ainsworth Industries as a Technical Author, producing their technical bulletins and manuals. He had been with them for 9 years at the time of his passing.



**Harry Brown VK6AP.** Photo supplied by courtesy of West Australian Newspapers Ltd.

His interest in radio started when he met some of the old Waverley Club during the mid 1970's. John became ill earlier this year, and was diagnosed as having cancer. He recovered sufficiently with treatment to leave hospital for a few months and enjoy some time with his family and friends. The support he received from his friends and fellow workers was enormous, and this meant a lot to him and to his family.

John will be sadly missed by all of his many friends, and he was a great driving force within the Waverley Amateur Radio Society where he was Treasurer. John passed away in the early hours of Friday morning, December 22nd, at the Sacred Heart Hospice, with his family members present.

## Harry Brown VK6AP

Harry became a silent key on November 23rd, 1989 at the age of 65 years.

His passing leaves a noticeable gap among many amateur operators and friends. A very close family man, he will be sadly missed by his wife Anne, their children and families.

Harry was born in Mackay, Queensland. He joined the RAAF and later saw active service in Britain and Europe. From 1942 to 1946 Harry was based at Leicester, England, as a Warrant Officer Rear Gunner with the 227 Squadron. Harry married Anne in Scotland and returned to Queensland in 1946.

After retiring from the RAAF Harry became an adult apprentice carpenter, qualifying as a Master Builder. At one time he was a keen instructor scuba diver and a member of the Underwater Explorers Club of WA.

In 1980 Harry was introduced to Citizens Bend radio by an ex-servicemen's group, the Wild Geese International Association. He interest grew quickly and he gained the novice call VK6NGB in 1984, then his full call, VK6AP, in 1986.

Harry's technical radio interests were building antennas, winding transformers, designing printed circuit boards and constructing power supplies for friends.

Harry was very fond of CW, (a skill gained in the RAAF), and produced practice morse text tapes for the VK6WIA Division tape library. On SSB he took pleasure participating in and receiving Amateur Awards. Later, he became very interested in the Amateur Radio Australian traffic network operations, (ATN), spending most of his time helping and conveying family messages to relatives both in and out of disaster areas. Special citation certificates were presented to Harry for his active on-air services in the 1985 Mexico earthquake, 1987 Vanuatu cyclone and the recent 1989 San Francisco earthquakes. Harry was an active member of the WIA, attending meetings and reporting on ATN matters.

On behalf of the Wireless Institute of Australia and Amateur friends, I wish to offer thanks for his friendship.

**MALCOLM K JOHNSON VK6LC**  
**VK6WIA PRACTICE MORSE**  
**CO-ORDINATOR**

## E H (Arch) Cox VK1GU

formerly VK3BD and VK2GU

The death occurred in Canberra on 11 December 1989 of E H (Arch) Cox, VK1GU. Arch, who hailed from Victoria, was a true old timer. He held certificate number VO60 and was first licensed as VK3BD in his home state of Victoria well before World War II.

Arch was active on air and in Institute affairs in Victoria prior to his transfer to Canberra in the mid 1930s. He was a reporter with the Herald in Melbourne and was assigned to the Press Gallery of the Federal Parliament as head of the Melbourne Herald Bureau. With the passage of time he became

the senior staff correspondent in the Press Gallery and confidant of many wartime Government ministers and politicians.

Re-licensed as VK2GU, Arch's name appears in the minutes of the formation of the Canberra Radio Club, later renamed Canberra Radio Society, which founded the VK1 Division.

The Club's papers and Amateur Radio magazine columns record the first Canberra to Sydney contact on 144 MHz on 5 Dec 51 between VK2GU and VK2ANF. Elsewhere his crystal locked frequency is noted as 144.1 MHz.

In 1966 as a culmination of the efforts of Arch and the late Les Pitts, VK1PI (formerly VK2PD), the ACT was assigned the amateur call prefix VK1, which up until then had been used in Antarctica. No doubt Arch's contacts in the House with the PMG and his staff assisted this re-allocation of call signs.

For his contributions to amateur radio, and in particular his efforts with Les in achieving the VK1 prefix for the ACT, the Canberra Radio Society proposed Arch for life membership of their division, the VK2 Division. That life membership was conferred on Arch at the 1969 WIA Federal Convention which was held in Canberra that Easter. The honour was conferred by Pierce Healey, VK2APQ, the NSW Division Federal Councillor at the convention Dinner in the presence of the Federal Council, delegates, CRS members and their ladies.

With the creation of the VK1 Division in 1974, Arch automatically transferred to become the new division's first life member.

Arch is remembered by senior VK1's as a person who would not suffer fools gladly, yet was approachable to discuss a point of interest concerning amateur radio. Anecdotal evidence suggests he was equally afraid of visits by the radio inspectors as the inspectors were afraid to make their formal calls. Perhaps his reported ability to increase power to achieve difficult HF contacts was not entirely irrelevant in this context!

With the passing of VK1GU we see the loss of yet another elder statesman of amateur radio in Australia.

**RON HENDERSON VK1RH**  
**FOR VK1 DIVISION**  
**AR**

## Answers

to Jenny's question from page 54.

President 1 John Allan VK5UL  
1970 - 1972

President 2 Geoff Taylor VK5TY  
1972 - 1974

**Sign up a new  
WIA member today**

## OVER TO YOU

ALL LETTERS FROM MEMBERS WILL BE CONSIDERED FOR PUBLICATION AND SHOULD BE LESS THAN 200 WORDS.

THE WIA ACCEPTS NO RESPONSIBILITY FOR OPINIONS EXPRESSED BY CORRESPONDENTS.

### Someone Likes Us!

Having been a member of the WIA for the last two years, I have read with interest the many letters published under "Over to You" columns and it occurred to me that the "pats" on the back are rather few and far between.

I was prompted to write because of some rather interesting remarks passed by my brother when he recently came to Australia from Canada to visit us.

He is an amateur in Victoria BC with the callign VE7DIF and became very engrossed with my copies of "AR" and expressed the opinion that our magazine was outstanding in every way — he could not get over the coverage of the many topics, the technical articles and value for money which AR offers.

Another thing which impressed him was the range of parts available in Australia for the home brew enthusiasts — yes there are still quite a number of us left!

The equipment supply committee and publications committee were another surprise to him.

Perhaps we don't realise how well off we are in Australia as apparently other countries including the USA do not offer anything like the standards we enjoy here when it comes to our publications and gear in general. It is surprising what can be found in the way of

"hard to get" bits when one is prepared to search out some of the smaller suppliers in this field.

As a brand new ham and an avid "home brewer" I felt my brother Seth's comments were worth a few lines and a compliment to all who try so hard to do the best possible for our fraternity.

PETER SPENCER VK5KBK  
PO Box 147 CLARE 5453

### The Man Behind The News

One sees the announcement that James A Wyatt VK4ZDJ duly won the "WIA 80" Logo Competition.

No surprise at all — knowing this OM (and his old man before him too) as I do!

Jim hails from my Central Queensland hometown of Mount Morgan with the fabulous gold-mine that has produced 8-million oz of gold (and vast quantities of silver and copper). He is by profession a senior draughtsman at the works.

Here's a photograph of Jim with one of his submitted designs (I made a special trip back to secure this). I am pleased to be able to provide this additional background to Jim's efforts.

Shortly I'll follow up with a screen on

amateur activity at Mount Morgan, which has an unusually high concentration of radio operators too.

In passing, it was Jim's father, then my boss, who first encouraged and assisted me in studying for the ticket: in younger days I was Assayer at the mine.

MERVYN EUNSON VK4SO  
GPO Box 1513  
BRISBANE 4001  
PHOTO: MERVYN VK4SO

### Ross Hull Rethink?

It was a pretty picture of the Ross Hull Memorial Trophy on the front of January AR. Unfortunately it takes more than a polished trophy to make a good competition. The Ross Hull is not a good competition, which is sad because it could be and should be one.

To my mind the Ross Hull should be the absolute apex of VHF/UHF competition and it should follow that the winner would automatically become the absolute top dog VHF/UHF man for that year. It follows from this that the competition must be such that it can only be won by a person who has put together a VHF/UHF station which enables contacts to be made under circumstances which would not allow those contacts to be made by a lesser station.

One might think that this was ridiculously obvious but successive contest managers have been unable to put together a contest which embraces this principle. All we seem to hear is that there is little interest because few logs are received. Given the structure of the Ross Hull the really surprising thing is that they seem to expect it to be otherwise! Perhaps THIS TIME it may be possible to get some common sense into the discussion when the inevitable "lack of interest" manifests itself again.

There are two simple rules which MUST be applied if the Ross Hull is ever going to attain the status which I think it should have. It is only by attaining that status that the competition is ever going to attract interest!

Here are the rules:

1. Contacts must attract points in direct proportion to the degree of difficulty involved in making them!

2. Contacts which are not due to the technical excellence of the station and/or its operator must, as far as possible, be eliminated!

The ramifications of these rules are numerous and space does not allow that I go into them now. Nevertheless here are some examples to go on with:

a. Points must be directly proportional to distance and frequency. This is simple enough. All you have to do is to allocate points in direct proportion to the path loss in dB.

b. Luck must be eliminated as far as pos-



Jim VK4ZDJ of Mount Morgan shows one of his logo designs.

sible and this means that the contest must be held at that time of the year when it is least likely that anyone can benefit from the "being at the right place at the right time" factor caused by excess probability of anomalous propagation. The duration must also be short. One weekend in about the middle of May is my suggestion.

c. A contact is only a contact if a message is passed from one operator to the other. The message should be unique and impossible to journalise, is not like Maidenhead locator numbers. The message should also take time, say at least five words and it should NOT indicate the score of the participants. After all who wants to submit a log when it is perfectly obvious who has the highest score already?

Is there anyone who would like to discuss the matter further? If so over to you.

73,

GORDON McDONALD VK2ZAB  
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BEROWRA HEIGHTS 2082

## Packet Racket A Tropic Topic?

1. Packet is alive and well in Far Nth Queensland, Cairns area, with about 8 operators so far and more to come. In the Cairns region we have Willie VK4AAC, Pete VK4DFR, Bob VK4ZBZ, Gordon VK4AGZ, Ian VK4KOR, Dale VK4DMC and Mike VK4AMO. Our local repeater atop Mt Haren, Kuranda, on 144.900 is working very well and has its own BBS mailbox built in. A link to Townsville is projected for the near future.

2. One advantage of living in the tropics is the prolific insect life, in the rainforest/jungle. A night spent at home can be very revealing, after the neighbours have turned their stereo off, and especially after rain. For every insect and small animal is out for a chat, and believe it or not... they use packet!

This was brought to me not long ago, on a hot and steamy night, when the XYL rolled over in bed and remarked, "do you have to leave all those noisy radios on?" I assumed she meant my VHF and HF packet systems, which I often leave running all night. I got up to turn them off.

To my surprise everything was already off. The breaker had blown with the recent tropical storm. But the packet sounds were still there!

A quick listen out the window revealed all. It was not Willie on 2 metres, but a large insect calling CQ. A bit further down the garden, was a female of the same species, giving either Acks or UAs, I'm not sure, but she wasn't getting any closer. Maybe he was too DX. A Gecko lizard on the ceiling gave a chirp. Another, in the corner, replied at once, obviously digpeeping to the Gecko family in the roof.

A Bombay Canary, our local brand of cock-

roach, came chirping over the sill, at about 300 baud, I'd guess. The lizards were well over 1200. A fruit bat chattered, as slow as RTTY!

I've spent quite a few nights in the garden now, to the chagrin of the XYL. She claims I've gone troppo, but, armed with a microphone, modem and laptop, some of these sounds are beginning to make sense. Trouble is, are they FSK or PSK? What baud rate? Parity or non parity? How far is DX?

Don't forget, I discovered this first, I'll let you know of my first QSO?

PETE ROBINSON VK4DFR  
23 MASON ST  
STRATFORD 4870

## More About VNG

Knocking VNG seems a bit like knocking Mom and apple pie, and that's why I've hesitated from doing it.

So I was pleased and gratified when someone else suggested that VNG was more trouble than it was worth.

WVW and WVWH have provided a splendid service for over 30 years. They are almost continuously audible in this country, and their spoken announcements are a great help.

VNG has one unique advantage in that its encoded pipe convey the time in digital format, and it is ideally suited to EDP processing for that reason.

But VNG is essentially a time service, its role as a frequency standard is secondary, in fact, largely irrelevant.

Thus VNG should be positioned on any available frequency, and should certainly be moved off the WVW frequencies, where it causes unnecessary interference.

AL RECHNER VK5EK  
PO Box 566  
MORPHEE VALE 5162

*(By now you have seen Marion Leiba's letter in defence of VNG in the Feb issue. One more point is that VNG is not on 15 MHz by choice, but by DOTC direction, and efforts are still being made to change to another frequency such as 16 MHz. Ed.)*

## Subsidies Etc

In his January "AR" letter, Graham, VK4WEM, raises a very valid point in reference to a government subsidy. If our Institute has not previously applied for a subsidy, there should be a number of red faces among the Executive members!

Considering the proven, and potential value of the Amateur Service, such a subsidy should be quite substantial, and no doubt would greatly assist in keeping the WIA "afloat".

As for VK2DDL under the heading "Smug

and Pompous" (in the same issue) I would have to go part of the way with the fellow. My main interest in "AR" is technical information. What happened to "Novice Notes"? There must be hundreds of novices joining our fraternity, and thirsting for the right information.

Recently, prior to constructing a delta-loop antenna for ten metres, I surrounded myself with text books. However, when delving through a pile of "AR" issues, I found that it had little interest in delta loops.

Nevertheless, I shall be forwarding my 1990 subscription, and would have the temerity to suggest that Mr Ellis apply for an executive position!

MAURIE DEWHINST VK5PMD  
4 HAWKE ST  
LINDEN PARK 5065

*(Over the years, several applications have been made by the WIA for subsidies, both State and Federal. Some have been successful. But even when granted, automatic renewal does not apply, and criteria for eligibility also change. "Novice Notes" is continuing at irregular intervals, but needs additional authors. Did you see March 88 p6 and Dec 88 p23 re delta loops? Ed)*

## Blatant Greed

It takes a lot to make me put pen to paper, but recent happenings that have left me feeling ripped off have made me do just that.

It all started after a recent trip to the USA, where I bought a new MFJ 1278 Terminal Node Controller, the cost US\$229 (A\$289) which I thought was a fair and reasonable price. Arriving back in good old Oz I happened to see this self same article advertised locally for \$595. I considered that I was very fortunate but couldn't understand how a figure twice as much as I paid in the States could be arrived at, especially considering that I paid retail price which obviously would have had mark-up added etc.

The second part of my story started when I unfortunately blew a 572B tube in an FL2100Z amplifier I say unfortunately because I had the same misfortune about 7 months previously, then I found that only two companies stocked these tubes. With freight, there was not a lot of difference in price between them, in fact I paid just over \$200 each. Imagine my disgust when 7 months later I found that one of the stores had no stock and when I approached a local branch of the other supplier I was informed that the price was now \$396 each. I could not believe this so I called up a VK2 friend who obligingly called the supplier's head office and it was confirmed that the price was \$350 (I imagine post packing etc took care of \$46!)

These self same tubes are advertising in the AES (USA) catalogue for US\$95 each.

I know there will be replies mentioning "duty" "tax" "insurance" "freight" "etc etc" but 2-300%?

Will someone please tell me what is going on? Are our suppliers trying to emulate the banks' huge profits? I honestly feel that it is a blatant case of utter and unashamed greed.

ANYONE GOT A CHEAP SPARE 572B?

JOHN WOODINGS VK6AJW  
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ROLEYSTONE 6111

## Asterisks, Intruders, Membership And VNG

I would like to comment on the following:

1. A few years back an asterisk or similar mark was used in the Callbook to indicate a WIA member. Regrettably this was dropped I am told, because of complaints by a few non-members of discrimination. I for one, maybe others, would like an indication of membership, among other things to show that QSLs may be sent via the WIA.

2. The letters by Ian Berwick-VK3ALZ and Gordon Loveday-VK4KAL (Letters Dec 1989), which referred to 10 metre intruders. In many cases, if not all, the Australian amateurs can only blame themselves. Tune across the 10 metre band — the whole 1.7 MHz of it to see what use, or should I say lack of use, is made of it. One can call "CQ" all day on 10 with zero results. A case of use it or lose it.

3. Well Mr Lawless I think you will find that non-members will be the first to whinge, and whinge the most if any bands or privileges are lost, or they find that some greenie inspired council will not permit them to put up a tower or antenna.

4. Cost of membership Ray Hinks - VK4LU (Letter January 1990). I agree those that are "bitching" about the fees charged by the WIA should take a good look at what other clubs (social and sporting) charge — especially pistol shooting, and see the fees and conditions here. I have no doubt that many would spend much more on a Saturday at the local pub.

6. VNG (DH Watkins — VK2DDR). I agree with most of your comments and I fail to see why VNG could not go back to their original frequencies of 7.5 and 12 MHz. WWV/WWVH and JYJ give voice announcements making their time signals of far greater use to most users. Just imagine the confusion if one had WWVH and JYJ coming in at or near the strength of VNG

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23 CUNNINGHAM ST  
WARWICK 4370

(We produce the Callbook for DOTC by contract. The asterisks were deleted at DOTC request. VNG is not on the WWV frequencies by choice, nor for the full 24 hours. Ed) ar

## Morseword No 36

Solution on page 64

### Across

- 1 Strong wind
- 2 Narrow opening
- 3 Regrets
- 4 Top
- 5 Lie
- 6 Cut
- 7 Conditions
- 8 Used to curdle milk
- 9 Keep
- 10 Male deer

### Down

- 1 Lowers the light
- 2 Concern
- 3 Satisfies
- 4 Under
- 5 Move quickly
- 6 Correct
- 7 Magistrate of Venice
- 8 Road
- 9 Retinue
- 10 Division

	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Audrey Ryan © 1989

## HF PREDICTIONS

ROGER HARRISON VK2ZTB  
THE APOGEE GROUP

### Background

For ease of use and to accommodate space restrictions in the magazine, I have provided predictions applicable for three major regions of Australia:

**VK EAST** Covers the major part of NSW and Queensland.

**VK SOUTH** Covers southern-NSW, VK3, VK5 and VK7.

**VK WEST.** Covers the south-west of West Australia.

For each of these regions I have selected six "terminals" to major continental regions of the world, or regions of particular interest. From time to time, I will include predictions to cover particular DXpeditions or other activities of special interest.

This month I have provided charts for South Sudan, in lieu of Africa, and for Palmyra Atoll. Information to hand, courtesy of Stephen Pall VK2PS, indicates there will be activity from these two regions during March, hence the change in the charts this month.

Feedback from readers and users would be most appreciated - let me know what you feel is wrong, and what's right, about the paths, presentation or any other aspect.

### The charts

These charts are different from those you see published elsewhere, and arguably more useful to the amateur fraternity as they give,

effectively, the predicted signal/noise ratio for each hour and for selected bands.

The charts are organised in 24 rows, one for each hour UTC (first column on the left). Don't forget to add the appropriate number of hours for your time zone, including daylight saving where it applies. The next column give the MUF (maximum usable frequency) for each hour, followed by the field strength at the MUF, in decibels referred to 1 uV/metre (dBu). The column marked FOT gives the "optimum" frequency - the most reliable frequency for the path.

Then come five columns, one for each of five selected HF bands.

The numbers in the column represent predicted field strength at each hour in decibels referred to 1 uV/metre. Here it represents "raw" signal to noise ratio as urban noise levels are typically 1-2 uV/metre, but does not take into account the advantage offered by particular transmission modes. The results are based on a transmitter power of 100 W output, the use of modest 3-element beams or similar, and for "median" conditions. Where the results fall below -40 dB, no output is printed.

Enhanced conditions may improve S/N ratio by 9-15 dB. The use of CW or digital transmission modes show better results than SSB. If you've got 400 W output, you get a 6 dB improvement. Where conditions warrant it, I have deleted 28.5 MHz predictions and included 10.1 MHz. In general, providing predictions for the bands below 10 MHz is futile

UTC	HR	DM	DOF	14.2	18.1	21.1	24.9	28.5
1	21.5	-2	16.6	-13	-5	-2	-3	-7
2	19.5	-2	15.0	-07	-2	-8	-0	12
3	21.7	7	18.1	-07	-18	-10	7	7
4	21.5	7	24.3	-	-08	-14	-6	-
5	21.5	-5	26.9	-	-10	-14	-6	-5
6	21.2	-5	25.7	-	-12	-19	-10	-6
7	21.4	-4	25.5	-	-11	-19	-10	-6
8	21.9	4	24.0	-	-28	-16	-9	-6
9	21.7	-9	22.1	-	-22	-12	-7	-4
10	22.5	-5	20.3	-	-34	-14	-9	-5
11	22.1	-5	18.3	-	-35	-10	-5	-8
12	22.0	-2	16.3	-	-32	-4	-3	-6
13	19.1	3	15.4	-	-2	-1	-2	-1
14	18.0	0	14.3	8	4	1	-7	-26
15	17.0	10	13.3	14	8	1	10	-23
16	16.4	12	12.4	16	0	1	10	-23
17	15.7	13	12.2	16	7	1	15	-21
18	14.7	14	11.9	18	3	1	15	-21
19	14.2	15	11.8	18	3	8	24	-
20	15.2	15	11.7	17	7	-37	-37	-
21	14.1	12	11.3	19	1	-1	-1	-
22	14.8	9	11.0	11	7	1	-9	-21
23	17.1	3	13.1	2	2	-3	-8	-20
24	17.1	-2	15.6	-7	-1	-1	-5	-11

UTC	HR	DM	DOF	14.2	18.1	21.1	24.9	28.5
1	20.2	-2	15.2	-08	-1	-3	-5	-3
2	21.1	-2	14.7	-19	-4	-3	-5	-3
3	20.9	-2	20.5	-32	-12	-5	-2	-9
4	20.6	-0	20.4	-30	-14	-7	-4	-9
5	20.4	-5	25.6	-	-25	-14	-7	-4
6	20.7	-6	25.4	-	-28	-16	-9	-6
7	20.6	-6	25.1	-	-28	-16	-9	-6
8	20.3	-6	24.5	-	-24	-13	-6	-6
9	20.5	-5	23.5	-	-21	-12	-6	-5
10	17.4	-5	21.7	-38	-14	-9	-5	-5
11	22.5	-4	20.1	-26	-10	-5	-4	-6
12	22.9	-3	19.1	-15	-4	-2	-4	-6
13	20.3	0	16.0	-5	8	-1	-13	-
14	24.8	4	14.5	6	5	0	-9	-29
15	24.6	9	13.2	12	6	-2	-14	-29
16	24.5	10	12.2	13	1	-1	-13	-29
17	24.4	11	11.8	13	2	-8	-20	-
18	24.3	12	10.8	12	-9	-16	-30	-
19	24.1	13	10.7	11	-8	-16	-30	-
20	23.7	14	9.7	8	-6	-20	-	-
21	23.4	15	8.7	7	-6	-20	-	-
22	23.1	9	12.0	12	4	-7	-23	-
23	23.2	3	13.1	6	3	-3	-26	-
24	23.2	1	13.1	-1	0	-3	-21	-

UTC	HR	DM	DOF	14.2	18.1	21.1	24.9	28.5
1	20.7	6	16.1	7	8	6	0	-8
2	22.9	-1	16.6	-7	-1	-2	-7	-16
3	22.8	-2	18.1	-18	-5	-2	-7	-16
4	20.6	0	20.4	-33	-6	-3	-6	-
5	21.7	2	23.8	-	-37	-8	-3	-1
6	21.6	-3	26.4	-	-30	-10	-4	-1
7	21.2	-4	25.8	-	-31	-11	-4	-1
8	20.9	4	25.3	-	-21	-13	-5	-4
9	20.2	4	23.7	-	-19	-10	-4	-9
10	20.8	4	23.1	37	-1	-7	-3	-1
11	24.6	0	22.7	36	9	3	-2	-6
12	24.8	0	21.4	14	-2	0	-2	-5
13	22.7	3	17.6	6	1	1	-2	-6
14	24.9	0	15.7	8	8	1	-4	-14
15	24.4	10	14.4	10	1	1	-4	-14
16	24.4	6	13.7	17	0	1	1	-21
17	24.3	10	13.0	17	1	2	16	-32
18	24.2	12	12.1	17	1	2	16	-32
19	24.1	13	11.8	16	5	-7	-23	-
20	24.4	14	11.1	15	2	-10	-28	-
21	24.3	14	10.5	15	1	-10	-28	-
22	24.4	14	11.1	15	4	-8	-25	-
23	24.7	12	13.8	18	10	-2	-11	-25
24	24.7	12	14.0	18	12	0	-5	-10

# VK EAST — STH SUDAN

# VK STH — STH SUDAN

# VK WEST — STH SUDAN

UTC	HR	DM	DOF	14.2	18.1	21.1	24.9	28.5
1	22.0	3	24.5	-25	-6	3	4	5
2	22.1	3	24.6	-28	-7	0	4	5
3	22.2	3	24.6	-28	-8	0	4	5
4	22.3	1	24.9	-29	-8	0	4	5
5	22.2	1	24.4	-24	-5	2	5	5
6	21.6	4	25.7	-26	-2	5	5	5
7	22.4	4	24.4	-17	7	8	8	8
8	22.0	7	24.4	4	1	12	11	7
9	21.7	11	22.1	27	25	22	13	10
10	24.3	12	20.8	28	21	24	7	7
11	24.0	12	19.9	29	24	19	12	6
12	23.8	12	18.9	29	23	18	10	0
13	24.5	12	18.9	29	23	18	10	0
14	24.2	12	18.9	29	23	18	10	0
15	24.2	12	18.9	29	23	18	10	0
16	22.7	12	18.1	28	22	16	7	-3
17	22.1	12	16.4	16	12	9	-3	-10
18	22.0	12	15.5	25	14	9	-3	-10
19	21.6	13	14.3	22	13	4	-10	-25
20	19.7	12	13.9	19	9	-3	-10	-25
21	19.7	12	13.9	19	9	-3	-10	-25
22	19.7	12	13.9	19	9	-3	-10	-25
23	20.7	12	13.9	19	9	-3	-10	-25
24	20.7	12	13.9	19	9	-3	-10	-25
25	20.7	12	13.9	19	9	-3	-10	-25
26	20.7	12	13.9	19	9	-3	-10	-25
27	20.7	12	13.9	19	9	-3	-10	-25
28	20.7	12	13.9	19	9	-3	-10	-25
29	20.7	12	13.9	19	9	-3	-10	-25
30	20.7	12	13.9	19	9	-3	-10	-25

UTC	HR	DM	DOF	14.2	18.1	21.1	24.9	28.5
1	22.5	1	26.5	-30	-8	-1	2	3
2	23.2	1	27.6	-31	-11	-1	2	3
3	23.3	1	27.9	-35	-12	-2	2	3
4	23.1	1	27.7	-33	-13	-2	2	3
5	22.9	1	27.3	-31	-9	-2	3	3
6	22.5	2	28.7	-25	-6	1	4	4
7	22.4	2	28.4	-25	-6	1	4	4
8	20.2	4	24.3	-5	6	9	9	5
9	22.5	9	22.5	20	16	16	16	16
10	20.6	9	20.8	25	22	18	12	5
11	24.6	18	19.9	25	20	15	7	-2
12	24.6	18	19.9	25	20	15	7	-2
13	24.6	18	19.9	25	20	15	7	-2
14	24.6	18	19.9	25	20	15	7	-2
15	24.6	18	19.9	25	20	15	7	-2
16	24.6	18	19.9	25	20	15	7	-2
17	24.6	18	19.9	25	20	15	7	-2
18	24.6	18	19.9	25	20	15	7	-2
19	24.6	18	19.9	25	20	15	7	-2
20	24.6	18	19.9	25	20	15	7	-2
21	24.6	18	19.9	25	20	15	7	-2
22	24.6	18	19.9	25	20	15	7	-2
23	24.6	18	19.9	25	20	15	7	-2
24	24.6	18	19.9	25	20	15	7	-2
25	24.6	18	19.9	25	20	15	7	-2
26	24.6	18	19.9	25	20	15	7	-2
27	24.6	18	19.9	25	20	15	7	-2
28	24.6	18	19.9	25	20	15	7	-2
29	24.6	18	19.9	25	20	15	7	-2
30	24.6	18	19.9	25	20	15	7	-2

UTC	HR	DM	DOF	14.2	18.1	21.1	24.9	28.5
1	22.7	3	23.8	-19	-3	0	2	3
2	23.0	3	24.4	-23	-5	3	3	3
3	23.0	3	24.4	-23	-5	3	3	3
4	23.0	3	24.4	-23	-5	3	3	3
5	23.1	2	24.6	-20	-2	7	0	3
6	22.9	2	25.4	-27	-5	4	4	4
7	22.9	2	25.4	-27	-5	4	4	4
8	20.0	4	24.3	-10	7	7	7	7
9	24.6	18	19.9	25	20	15	7	-2
10	24.6	18	19.9	25	20	15	7	-2
11	24.6	18	19.9	25	20	15	7	-2
12	24.6	18	19.9	25	20	15	7	-2
13	24.6	18	19.9	25	20	15	7	-2
14	24.6	18	19.9	25	20	15	7	-2
15	24.6	18	19.9	25	20	15	7	-2
16	24.6	18	19.9	25	20	15	7	-2
17	24.6	18	19.9	25	20	15	7	-2
18	24.6	18	19.9	25	20	15	7	-2
19	24.6	18	19.9	25	20	15	7	-2
20	24.6	18	19.9	25	20	15	7	-2
21	24.6	18	19.9	25	20	15	7	-2
22	24.6	18	19.9	25	20	15	7	-2
23	24.6	18	19.9	25	20	15	7	-2
24	24.6	18	19.9	25	20	15	7	-2
25	24.6	18	19.9	25	20	15	7	-2
26	24.6	18	19.9	25	20	15	7	-2
27	24.6	18	19.9	25	20	15	7	-2
28	24.6	18	19.9	25	20	15	7	-2
29	24.6	18	19.9	25	20	15	7	-2
30	24.6	18	19.9	25	20	15	7	-2

# VK EAST — ASIA

# VK STH — ASIA

# VK WEST — ASIA

UTC	HR	DM	DOF	14.2	18.1	21.1	24.9	28.5
1	14.2	-3	10.3	-24	-15	-19	-27	-
2	13.1	-3	9.9	-18	-11	-15	-20	-27
3	14.2	-4	10.4	-24	-15	-19	-27	-
4	13.7	-4	9.8	-14	-11	-15	-20	-27
6	15.1	-1	11.1	1	1	1	1	1
7	15.1	-1	11.1	1	1	1	1	1
8	15.1	-1	11.1	1	1	1	1	1
9	15.1	-1	11.1	1	1	1	1	1
10	15.1	-1	11.1	1	1	1	1	1
11	15.1	-1	11.1	1	1	1	1	1
12	15.1	-1	11.1	1	1	1	1	1
13	15.1	-1	11.1	1	1	1	1	1
14	15.1	-1	11.1	1	1	1	1	1
15	15.1	-1	11.1	1	1	1	1	1
16	15.1	-1	11.1	1	1	1	1	1
17	15.1	-1	11.1	1	1	1	1	1
18	15.1	-1	11.1	1	1	1	1	1
19	15.1	-1	11.1	1	1	1	1	1
20	15.1	-1	11.1	1	1	1	1	1
21	15.1	-1	11.1	1	1	1	1	1
22	15.1	-1	11.1	1	1	1	1	1
23	15.1	-1	11.1	1	1	1	1	1
24	15.1	-1	11.1	1	1	1	1	1

QTC	HAZ	DBS	POV	14.2	16.1	21.1	24.9	28.5
1	27.1	12 21.0	5	15	35	15	12	
1	27.9	12 23.3	5	14	44	15	12	
1	27.6	13 22.9	7	15	7	15	12	
4	27.3	14 22.4	10	17	16	12		
5	26.7	15 21.7	15	20	17	12		
6	25.5	17 20.5	24	25	12			
7	24.1	20 19.9	32	29	15			
8	22.5	21 17.9	33	28	14			
8	20.9	22 18.6	38	27	12			
10	19.2	23 15.3	3	25	18			
11	18.3	23 14.5	11	24	18			
12	17.5	23 12.8	30	22	14			
13	16.5	24 13.1	29	20	11			
14	15.5	24 12.2	27	17	7			
15	14.7	24 11.5	24	14				
16	13.8	25 10.7	24	11				
17	12.8	25 9.9	2	7				
18	11.7	24 10.1	19	3				
19	10.4	18 12.1	19	32	4			
20	19.8	14 15.3	16	16	12			
21	23.8	14 16.7	14	16	12			
22	25.1	17 20.9	9	15				
23	26.9	17 21.9	9	14				
24	27.4	15 21.9	5	14				

VK EAST — STH PACIFIC

QTC	HAZ	DBS	POV	14.2	16.1	21.1	24.9	28.5
1	29.3	4 24.3	-4	7	9			
2	23.5	4 24.8	-3	7	9			
3	23.4	4 24.4	1	8	10			
4	29.1	5 24.1	2	10	12			
5	29.0	6 23.7	8	14	14			
6	28.5	8 23.0	10	19	18			
7	27.2	10 22.6	26	24	21			
8	25.2	12 20.0	29	25	20			
9	23.1	13 18.3	29	23	17			
10	20.5	13 16.6	38	20	12			
11	18.9	14 14.8	35	16	7			
12	17.1	15 11.7	23	12				
13	16.2	15 12.8	31	9				
14	15.1	16 11.9	18	5				
15	14.5	16 13.4	17	2				
16	13.8	16 10.7	15	1				
17	13.1	18 10.1	12	-4				
18	12.4	14 9.5	9	-9				
19	11.5	9 10.2	7	-6				
20	15.8	4 11.9	5	0				
21	20.3	3 15.4	1	2				
22	24.4	3 19.3	0	7				
23	27.4	4 21.8	7	7				
24	28.5	4 23.2	-3	7				

VK STH — STH PACIFIC

QTC	HAZ	DBS	POV	14.2	16.1	21.1	24.9	28.5
1	29.0	-1 23.6	23	-5	1			
2	29.7	-1 24.7	24	-7	3			
3	29.8	1 22.4	-23	4	0			
4	29.8	-0 24.8	-20	4	1			
5	29.5	1 24.4	-14	-1	3			
6	29.3	3 24.0	-4	6	7			
7	28.4	15 21.6	7	12	10			
8	24.6	8 23.2	16	17	15			
9	24.7	10 19.5	24	21	17			
10	22.4	12 17.8	25	20	14			
11	20.2	13 16.0	24	18	0			
12	18.9	14 14.9	23	15	7			
13	17.4	-4 13.8	22	17	3			
14	16.3	15 12.9	20	9				
15	15.1	15 12.1	19	6				
16	14.8	15 11.6	17	5				
17	14.1	16 10.9	15	2				
18	13.4	16 10.3	13	-1				
19	12.7	9 9.6	15	-9				
20	13.8	2 10.5	1	-6				
21	16.7	-9 13.8	-4	3				
22	20.6	-0 15.8	-15	0				
23	25.2	-1 19.6	-16	-4				
24	27.9	-1 22.2	-21	-5				

VK WEST — STH PACIFIC

QTC	HAZ	DBS	POV	14.2	16.1	21.1	24.9	28.5
1	35.7	6 26.8	-23	-3	4			
2	35.7	6 28.5	-21	-2	5			
3	35.9	7 28.4	-16	1	7			
4	35.2	8 28.7	-9	12	13			
5	34.5	10 27.0	3	13	16			
6	33.3	12 26.6	48	32	22			
7	33.6	14 26.0	32	29	24			
8	32.2	13 25.7	32	30	26			
9	31.6	11 24.7	31	30	27			
10	30.6	13 23.5	31	30	26			
11	29.8	12 22.9	33	29	26			
12	28.2	14 22.3	33	29	25			
13	26.9	14 21.4	32	28	18			
14	24.9	14 19.5	31	28	21			
15	23.7	15 18.3	30	24	19			
16	21.5	15 16.7	28	22	18			
17	19.5	16 15.0	24	19	13			
18	19.4	12 14.8	19	14	6			
19	22.2	7 17.4	9	4				
20	28.5	5 22.0	-1	7				
21	33.6	6 24.6	-12	3				
22	39.2	5 21.2	-34	0				
23	36.2	5 20.8	-23	-3				
24	35.7	6 20.9	-24	-4				

VK EAST — PALMYRA ATOLL

QTC	HAZ	DBS	POV	14.2	16.1	21.1	24.9	28.5
1	31.3	1 26.0	-31	-10	-2			
2	31.7	1 26.0	-29	-9	1			
3	33.2	2 25.4	-25	-6	1			
4	30.8	3 24.6	-17	-2	4			
5	29.5	6 24.8	-5	9	9			
6	28.8	9 23.0	11	14	16			
7	28.5	10 22.7	23	23	20			
8	27.5	10 21.7	27	24	20			
9	25.1	10 19.9	27	23	18			
10	22.7	11 18.0	26	20	15			
11	20.2	12 16.0	26	17	9			
12	16.7	12 14.7	23	14	5			
13	17.4	12 15.9	21	11				
14	16.4	13 13.0	19	8				
15	15.8	13 12.4	18	6				
16	15.7	13 11.8	16	3				
17	14.4	13 11.1	14	0				
18	13.7	7 10.5	5	-6				
19	16.8	-9 11.1	-5	-6				
20	17.5	-6 13.2	-10	-6				
21	22.7	-4 17.4	-18	-4				
22	27.5	-2 21.1	-25	-6				
23	30.5	-1 24.3	-29	-8				
24	32.5	0 25.7	-31	-10				

VK STH — PALMYRA ATOLL

QTC	HAZ	DBS	POV	14.2	16.1	21.1	24.9	28.5
1	34.6	-1 28.1	-	-20	-8			
2	34.6	0 28.8	-	-22	-9			
3	34.0	0 27.2	-	-19	-1			
4	26.3	2 27.9	-38	-14	-1			
5	26.8	3 27.1	-27	-7	1			
6	32.4	6 29.9	-11	3	9			
7	31.7	9 28.5	1	11	14			
8	31.2	9 25.0	15	19	17			
9	30.9	10 25.4	25	24	22			
10	27.9	13 22.1	37	24	15			
11	25.1	11 20.1	37	23	19			
12	22.7	12 18.0	26	21	16			
13	21.2	13 16.8	25	19	13			
14	20.2	13 15.8	24	18	11			
15	18.0	14 15.0	23	16	9			
16	16.3	14 14.3	22	14	6			
17	17.5	14 12.6	21	13	4			
18	16.6	10 12.8	14	7				
19	15.7	3 12.0	2	0				
20	14.3	-4 12.9	-8	-7				
21	19.8	-6 15.7	-14	-7				
22	25.8	-7 18.9	-28	-11				
23	31.2	-2 24.4	-40	-16				
24	34.4	-1 27.4	-41	-19				

VK WEST — PALMYRA ATOLL

during this part of the solar cycle, except perhaps where DXpeditions are concerned.

The predictions are calculated using a program known as "FT2", for IBMs and compatibles, distributed by FT Promotions. ar

Remember to leave a

**3**

second break  
between overs when  
using a repeater.

Support the WIA  
In order to protect  
AMATEUR RADIO  
frequencies at  
WARC 92

Have you advised the  
WIA Executive office of your new callsign?

REVILLAGIGER

**FERNANDO QUIJANO**

One of the exotic QSLs recently received by Stephen Pall VK2PS

# HAMADS

## TRADE ADS

**DECODE FAX & RTTY:** Listening Post software for Apple II, MICROBEE, C64/128. Decode FAX and RTTY on shortwave (Morse too, with Apple & cBee). Print ptx and text on common dot matrix printers. Apple & Commodore put fax on-screen. Full documentation \$32 post free anywhere in VK. FT Promotions, PO Box 547 Rozelle NSW 2039. PH: (02) 818 4838. Fax: (02) 818 2949.

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**SATFAX:** NOAA, Meteor, GMS weather satellite picture receiving program for IBM XT/AT. Displays in 64 colours. Needs EGA colour monitor & card, and "Weather Fax" PC card \$45 + \$3 postage. **RADFAX2:** HF weather fax, Morse & RTTY receiving program for IBM XT/AT. Needs EGA, SSB/HF, FSK/Tone decoder. Also "RF2HERC" & "RF2EGA", same as RADFAX2 but suitable for Hercules & EGA cards respectively. \$35 + \$3 postage. All programs are on 5.25" OR 3.5" Disk + full documentation. ONLY from M. Delahunty, 42 Villiers St, New Farm 4005 QLD. Ph. (07) 358 2785.

## FOR SALE — ACT

**YAESU FT-470** dual band handheld 2m + 70cm 5w: extra coverage VHF UHF RX. Many features incl. dual RX, APO, save DTMF, tone, sq. full key pad & light small size with 5w dry cell & 12v alt and charger mint cond \$650. Contact Tom VKJSTV PH: (062) 81 5079.

## FOR SALE — NSW

**YAESU FT-480R** 2 metre all mode transceiver, 2.5 w & 10 w, with manual. Licensed amateurs only. \$500. Mark VK2EMG QTHR (02) 85 6870.

**TENTEC PARAGON** allmode trans. \$2,150. ELECTRONIC money key (2) \$90. Paddle \$45. (047) 54 2299 after 6pm.

**THREE ELEMENT** YAGI antenna; 'TET' HB33SP, VGC \$200 MIKE (043) 57 7499/VK2IH QTHR.

**LOG PERIODIC HF antenna.** Model 20-30-6S made by ATN antennas. Six elements four metre boom length. Deceased estate \$225. Ex-Springwood. PH: (047) 51 4257/VK2VJD QTHR.

## FOR SALE — VIC

**FT707 HF transceiver** \$750. **FP757HD** 20 amp power supply \$500. **FC700 ATU** \$250. All in good condition also **FT290R** 2m all mode portable plus usual bits. \$500. **VK3ECG DAVID** (03) 648 4305 BH (03) 862 3315 AH, QTHR

**YAESU FT480R** 2 metre FM/SSB/CW xcvr very good order. Complete \$475. **VK3OM QTHR** (059) 44 3019.

**YAESU FT-209** 2m hand held, FNB4 and FBA5 batteries including home brew constant current charger \$400. **BERT VK3TU** (03) 607 7760 BH (052) 78 2374 AH QTHR.

**DICK SMITH** 2M linear 100w as new \$240. 6M linear as above \$250. **ICOM IC202** with beacon and satellite freqs. \$200. **HIMOUND** more key \$30. **ROGER VK3XRS** (051) 58 8291.

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**DRAKE TR-7** btr gen-cv rx. AM, RTTY, CW & SSB. \$1,200. **SCANNER** regency M-100. Covers UHF & VHF handbands \$180. **FRANZ VK3DHF** PH: (03) 726 7137.

**KENWOOD TS440S HF transceiver** with narrow SSB filter, little used, in original carton with handbook and microphone, suit new transceiver buyer, \$1950 ono. **VK3ARZ QTHR** (03) 584 9512.

## FOR SALE — QLD

**KENWOOD TS440S** incl h/h mic, ATU SSB-N & CW-N filters, IR tuning upgrader and service manual. VGC \$2,000. **DOUG VK4AIZ QTHR** (07) 391 5526.

**SCREEN BASED TELEPRINTER** with word processing replaced by fax. Model telex 2000. Cost \$6500 any offers over \$100? **VK4TO PETER** on (077) 72 4400 QTHR.

**YAESU FT707** mint condition \$700. Will deliver anywhere free phone after 6pm (071) 85 1240

## PAT VK4WHO.

**SM-100 10HZ — 150 MHZ** frequency counter 6-9vdc 8 digit gate times 0-0.1S to 10S hold reset. \$150 with cable excellent condition. **VK4KAL QTHR** (079) 85 4168.

**YAESU FT7 HF Transceiver** mike manual good condition \$500 **John VK4ET QTHR** (07) 28 3942.

## FOR SALE — SA

**KENWOOD TS130S** pwr 100 watt out mobile rig MA5 HF 5 band heliwhip ant SP40 mob/spk bumper ball antenna mount. Perfect cond. Hardly used everything \$780. QTHR PH: (083) 344 5011.

**EIMAC 3-400Z** new and boxed with chimney and base. Base installed in metal work and cabinet for 6MX linear as per ARRL handbook. Mobile mount for TS120. Reasonable offers considered. (088) 25 7084 QTHR 1989 onwards **GEOFF VK5OH**

**TELCON** semi air spaced twin coax 2kW to 2m, transmitting tubes 4-85A; 4E27(813) Grundig reel-to-reel recorder two sets tubes KW2000. Portable Diathermy 600 watts 7 metres; Post-war receiving tubes new ribbon micro — **VK5LC QTHR** (08) 271 6841

**TONO 9000E** mint plus monitor \$700 offers **CRED** 444 \$50 M100 \$50 PH: (086) 45 0023.

## FOR SALE — WA

**YAESU FT-757GX** transceiver **FP-757GX** power supply MD-1 microphone as new \$1,500. **KENWOOD TM-2570A** 2m rig as new \$450. All with books **ANDREW VK6WB** (08) 447 1213.

## FOR SALE — TAS

**ICOM IC-R71A** comm rxvr as new little use \$900 ono. **YAESU FRT-7700 rx** ATU also top cond. \$80 **DAMIEN VK7CDI** (033) 26 3772.

**THREE ELEMENT** three band beam 20-15-10 CE-33 \$200 **FRED VK7FD** (004) 31 5173 QTHR.

## WANTED — NSW

**VALVES URGENT** 7380 12BY7 6U8 types please help keep my FT200 alive **MAX VK2GE** (065) 85 5732 QTHR

**BOOKS ARTICLES** and papers on oscilloscope design also plug ins for **TEKTRONIC 540** series state price. **DAVID KIDD** 8 GOSSE Ave DUBBO 2830 (068) 81 8906.

**TET EMTRON HB33DX** antenna 3 element tribander 10/15/20 metre cost \$650 sell \$225 **STAN VK2DUI** (042) 349 3741

## WANTED — VIC



YAESU digital display FT 101Z/B. ROB VK3VOS  
(03) 364 0078.

RECEIVER (vfo must be 5-5.5 MHz) valve type  
any condition also power transformer for HAL-  
LICRAFTERS transmitter HT37. VK3CUP (054)  
22 2786.

**WANTED — QLD**

CHEAP 6 metre all mode transceiver any con-  
dition also 1296 MHz SSB transverter or 1240-  
1300 FM transceiver. PH (07) 800 6798.

**WANTED — SA**

SIX METER conversion details for bushranger  
CB or similar unit any help appreciated Alan  
VK5BWG PO Box 1337 STIRLING NORTH  
5710 STH AUST.

TRI-BAND YAGI three or four elements must be  
in good condition. (086) 25 7084 QTHR 1989  
onwards. GEOFF VK5OH.

**WANTED — WA**

DIGITAL frequency counter for FRG7 FARMER  
15 WEDGEWOOD drive EDGEWATER 6027.

WANTED intruder watch observers in VK6 free  
tapes logs and assistance available contact  
VK6RO Graham on (097) 451 3561 or QTHR.

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VK6XX (089) 51 3138 BH. (089) 53 4056 AH.  
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\*Copy typed or in block letters to PO Box 300,  
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☐ Wanted

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## Solution to Morseword No 36

	1	2	3	4	5	6	7	8	9	10
1	—	—	—	—	—	—	—	—	—	—
2	*	*	*	*	*	*	*	*	*	*
3	*	*	*	*	*	*	*	*	*	*
4	*	*	*	*	*	*	*	*	*	*
5	*	*	*	*	*	*	*	*	*	*
6	—	—	—	—	—	—	—	—	—	—
7	*	*	*	*	*	*	*	*	*	*
8	—	—	—	—	—	—	—	—	—	—
9	*	*	*	*	*	*	*	*	*	*
10	*	*	*	*	*	*	*	*	*	*

Across: 1 gale 2 slit 3 rues 4 head 5 fib  
6 mown 7 terms 8 rennet 9 save 10 hart

Down: 1 dims 2 care 3 saates 4 sub 5 zap  
6 fix 7 dogs 8 street 9 suite 10 rift

Have you advised  
DoTC of your new  
address?

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It is impossible for us to ensure the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that, the provisions of the Act are complied with strictly.

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Caulfield South, Vic 3162

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- All modes - SSB, CW, FM, AM, FSK (on HF, VHF, and UHF)
- Upconverting triple conversion H.F. receiver covering 100kHz to 30MHz, with choice of RF amplification or direct mixer feed.
- Heavily optioned - inbuilt 600Hz CW filter, inbuilt 6kHz AM filter, RF speech processor, I.F. notch and I.F. shift filters, inbuilt heavy duty AC power supply, inbuilt automatic H.F. antenna tuner, high stability PLL (+/- 3ppm), data IN/OUT sockets for packet T.N.C. connection, all mode squelch.

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Vol. 12 issues 6  
and 7,  
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# DICK SMITH ELECTRONICS

# LISTEN TO THE WORLD



## WITH ICOM RECEIVERS

There's a world full of information out there and more people are using ICOM's outstanding range of receivers to gain access. ICOM will expand your horizons to include new dimensions in transglobal communications both public and private. For local news, weather and emergency services transmissions or a wealth of international knowledge – listen to the world with ICOM receivers.



**IC-R9000**

The first receiver to give you all communications from 0.1MHz to 2GHz. That's space age technology applied to literally space communications.

Every receiver and scanner on the market is in this amazing unit.

#### FEATURES:

- AFC, for FM Modes.
- USB, LSB, CW, FSK, FM, FM-narrow, AM.
- 1000 Programmable Memories.
- 10 groups of Scan ranges.
- Multiple tuning steps.
- Direct Digital synthesizer.
- Dual clocks and timer functions.
- Super high frequency stability.
- Spectrum Scope included in Multifunctional, CRT display.
- Computer Controllable (optional CT17).

**IC-R71A**

Pick up long wave, medium wave and short wave bands around the world. Set your favourite frequencies and sit back with your remote control (optional) to enjoy amateur to national radio broadcasts.

#### FEATURES:

- USB, LSB, AM, FM, CW, R-ITTY (FM Mode is optional)
- 32 Memory Channels.
- Infrared remote control (optional).
- Programmed memory and mode scans.
- Adjustable IF Notch Filter.
- Noise Blanker.
- 12V DC Kit for portable operation (optional).
- Voice Synthesizer (optional).



**IC-R7000**

Every UHF/VHF message is within ear-shot. Listen in on weather, fire emergency services, TV and many more local communications with total convenience. Program your interests, scan for news, it's all neatly packaged.

#### FEATURES:

- USB, LSB, FM, FM-narrow, AM.
- 99 Memory channels.
- Infrared remote control (optional).
- Variable scan speed and delay.
- Noise blanker.
- 12V DC Kit for portable operation (optional).
- Voice Synthesizer (optional).
- 6 scanning functions.

Call ICOM on (008) 338 915 for details on ICOM products and your nearest stockist.  
Melbourne callers (03) 529 7582, ICOM Australia Pty. Ltd., 7 Duke Street, Windsor, 3181.

ICOM Australia's warranty is only applicable to products purchased from their authorised Australian Dealers.

NOTE: Handles optional on all models.

**ICOM**

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